Medical Lib.
MAR 15 1924

Virginia Medical Monthly

OFFICIAL ORGAN OF THE MEDICAL SOCIETY OF VIRGINIA

Vol. 50, No. 12.
WHOLE No. 861.

RICHMOND, VA., MARCH, 1924

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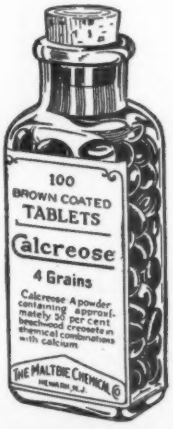

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Original Communications

HEMORRHOIDS UNDER REGIONAL ANESTHESIA.*

By STANLEY H. GRAVES, M. D., F. A. C. S., Norfolk, Va.

Since it has been proven that the only satisfactory method for curing hemorrhoids is by operation, every effort should be put forward to successfuly combat the suffering and discomfort incident to hemorrhoidectomy, and an operative technic worked out, and adopted, that can be speedily performed, without pain or great inconvenience to the patient. The writer believes that, with the use of regional anesthesia, such a method is at our disposal and, in the hands of a skilled operator and properly utilized, should not cause any pain, at the same time being safe, simple and satisfactory.

After the patient has been examined, hospitalized, and prepared, one of four methods of operative procedure are at one's disposal. Named in their order of popularity, they are the ligature, clamp and cautery, excision of veins, and the Whitehead operation. My preference is the ligature. It appears to be the method of choice, has been utilized in the removal of hemorrhoids for many years, and is still universally employed by surgeons throughout the world. Few instruments are required, the operation can be performed in a few minutes, and is very rarely accompanied by profuse bleeding or post-operative complications.

The next is the clamp and cautery, especially useful in the removal of internal hemorrhoids. In fact, this method is applicable to so many cases, that it is often a personal preference with the operator as to whether he utilize the ligature or clamp and cautery. The few disadvantages of the method are hemorrhage, and the failure of the cautery to work at the appointed time. I have greatly overcome this difficulty by using the electro-cautery. Some little practice and experience will be required with this type of cautery to properly regulate the heat. If the point is too hot, it predisposes the case to hemorrhage and, in touching tabs, the transmitted heat may cause the skin edges to slough, which is invariably followed by much discomfort and pain.

The excision method is occasionally used on very large external piles. Here the tumor masses are removed in successive stages, first an incision, dissecting out the large veins, suturing or ligating them, and then suturing of the wound. The operation is comparatively safe, and discomfort or post-operative complications are as infrequent as with the simple ligatures. I rarely employ the Whitehead operation; it has too many disadvantages to commend its frequent use. It should be utilized in only a few selected cases, then by a skilled operator.

When considering regional anesthesia for the removal of hemorrhoids, we have two routes for selection. The sacral block and the ano-rectal field block. Caudal or sacral anesthesia is accomplished by passing the needle through the sacral hiatus, and depositing the anesthetic in the sacral canal. This opening is the result of defective closure, or non-closure of the laminae of the last sacral vertebra, and is covered by the sacro-coccygeal membrane. The hiatus lies at about the junction of the sacrum and the coccyx, and is bounded by the sacral cornua on each side, and the spinous process of the fourth sacral vertebra above. It has the shape of an inverted "V." The sacral canal is a prismatic space occupying the whole length of the sacrum, and is connected with spinal canal by its uppeer extremity, its lower extremity being the sacral hiatus.

With the patient lying flat on his stomach, and a cushion under his hips to raise the sacral region, and render the landmarks more accessible, the sacral hiatus is located by passing the index finger on the middle of the back from the tip of the coccyx toward the sacral region. A depression will be felt about the junction of

*Read at the fifty-fourth annual meeting of the Medical Society of Virginia in Roanoke, October 16-19, 1923.

the coccyx with the sacrum, and outlined by the sacral cornua on either side and the spinous process of the fourth sacral vertebra in the midline above. The outlining of these three points, that are palpable in the majority of cases, will define a triangular space, at the middle point of which the needle is introduced with ease and success. A spinal puncture needle, with its stylet in and the bevel turned upwards, is introduced through a wheal of novocain raised at this point, at an angle of about twenty degrees, with the normal to the skin surface at the site of the puncture. After piercing the sacrococcygeal membrane, the needle strikes the anterior wall of the canal. It is now withdrawn slightly, and the body of the needle depressed, and advanced gently and gradually into the canal, keeping in the middle line until about 6 c.m.—2¼ inches—has been introduced. If there is obstruction a short distance from the point of entrance, a little manipulation of the sacrococcygeal membrane and gentle movement of the needle will usually release it. If this is not successful, the needle must be withdrawn and introduced a little higher up. When in correct position, the stylet is withdrawn, and a little time is allowed to make sure that no blood or cerebrospinal fluid comes out. If this should occur, the needle is withdrawn slightly until the flow ceases. It is best, before making the injection, to attach the empty syringe and make the aspiration test before the solution is introduced, so as to be quite certain that no intraspinal or intravenous injection is made.

The syringe is now filled with the solution, which consists of 30 c.c. of a 2 per cent solution of novocain and is slowly injected. A very good point to remember is that when the needle is correctly in the sacral canal the fluid passes in very easily, and free from pain but, when not in the canal, considerable pressure is required, and the patient will complain of some pain. In my work I have preferred the novocain put up in the following combination:

	Sodium Bicarb	0.15 gm. (pure)
	Sodium Chlo	0.10 gm.
For a 2% solution:	Novocain Hydroc	0.60 gm.
	Distilled water	30.00 c.c.

Five drops of adrenalin is added at the time of use.

The injection having been made, the patient is directed to turn on his back. Anesthesia will not set in satisfactorily for fifteen minutes, and can be tested with a needle or clamp on the skin around the anus.

The ano-rectal field block is performed by introducing the novocain around the lower segment of the rectum, catching the nerves outside, and away from the bowel. The patient is placed in the lithotomy position, and from two to four small wheals of novocain are made around the anus and about 2 c.m. from the hemorrhoids. If this is done with a very small needle and the skin pinched up when the needle is introduced, patients will very rarely complain of the puncture. A 5 c.m. needle with some flexibility is now introduced in the various wheals and a circular injection made under the integument. This injection greatly relieves the sensitive condition of the piles, and admits the passage of the finger into the rectum without discomfort. At this point, a 10 c.m. flexible needle is affixed to the syringe, and introduced at the injected points successively and passed along the inner aspect of the sphincter muscle, injecting the fluid as the needle is introduced, the finger in the rectum guiding the needle and eliciting the quantity of solution injected by the submucous bulging. In about ten minutes the anesthesia should be complete. Very rarely will the sphincter require any dilatation, for under regional anesthesia the tissues relax themselves. A ½ to 7/10 per cent solution is used and 50 to 80 c.c. will be the usual amount required. Two to 3 drops of adrenalin chloride is added to each 10 c.c. of fluid.

In a series of one hundred hemorrhoidectomies in my service at the Sarah Leigh Hospital, the following anesthetics were used:

Sacral Block	61
Gas Oxygen	22
Ether	8
Sacral & G. O.	3
Lower Field Block	5
Gas Ether	1

Five of the gas oxygen cases had sacral block which failed to work satisfactorily; two of the ano-rectal block had sacral injections that proved to be inadequate. The after effects or complications may be enumerated as follows:

Three complained of considerable pain in and around the field of operation, all three clamp and cautery; one hemorrhage, a clamp and cautery; one sloughing of the outside skin, caused by use of cautery on tags after the employment of ligature; four cases complained

of some pain in the sacral region radiating toward the hips for a few days, which then entirely disappeared. It must not be overlooked that all of this series were hospital cases and none of the variety treated in the office, such as thrombotic piles and skin tags.

After the operation, a suitable wedge-shaped dressing is placed over the anus and a well fitting T-binder is applied. Sometimes a tube or wick of gauze, well coated with vaseline, is used in the rectum, but they predispose to pain, difficult micturition and hemorrhage when removed, *therefore*, should be discouraged in all uncomplicated cases. The changing of the outside dressing as may be required and the use of morphia and a hot water bag over the dressing as needed for pain, and liquid diet, constitute the after treatment. A gentle cathartic is given on the second or third night, the bowels acting as a rule during the forenoon of the following day. After the bowel evacuation, the patient is placed in a tub of hot water for ten or fifteen minutes, then dressed, Deod. Tr. Opium may now be resorted to for pain and any tendency to straining; soft diet is ordered for two days; when general diet is permitted. The stay in the hospital is from one week to ten days for clamp and cautery and ten days to two weeks for ligature and excision. If the injections are made correctly, and the solution represents its full strength, the entire field of operation should be so anesthetized that all manipulations are perfectly painless, unless rough handling, and undue pulling against the adjacent unanesthetized tissues cause excitement and distress.

In my experience there have been no ill effects from this method, and it certainly reaches the ideal more nearly than any method known today. It is applicable to almost all cases, especially in the very old and infirm, and where other anesthetics are contra-indicated. The tissues are nicely relaxed, *thereby* overcoming much trauma incident to the manual stretching of the sphincter, and the block- lasting from one to one and one-half hours, prevents a great deal of after suffering. Patients are freed from painful shock, post-operative shock, and vomiting which often follow the general anesthetic. Failures are generally due to technical errors, congenital defects, occlusion of the sacral foramen, traumatized pelvis and malignancy of the sacral canal.

BIBLIOGRAPHY.

Gant—Dis. Rect. & Col., 1st Vol., 3rd Edition.
Lynch—Dis. Rect. & Col., 1924.
Labat—Regional Anesthesia, 1922.
Farr—Practical and Local Anesthesia, 1923.
Schlesinger—Local Anesthesia.

DISCUSSION.

DR. S. S. GALE, Roanoke: I think the Doctor has covered the ground on regional anesthesia in hemorrhoidectomy very thoroughly. Personally I have had some experience in the use of caudal block in operating on internal hemorrhoids.

I had the misfortune to do a caudal block not long ago, not on an internal hemorrhoid case but for stricture of the urethra, and I lost my patient. This patient was a very sick and very much run down man and had retention of urine, cystitis and poor kidney function. For that reason I thought the caudal block would be the safest anesthesia. In this case I overlooked the point which the Doctor has made in doing these blocks, that is not passing the needle further than 6 cm. into the caudal canal. While I had studied the technic of several different clinics I had failed to grasp the point the Doctor mentioned of not passing the needle into the canal beyond 6 cm. After passing the needle into the canal, attach the syringe and see if blood or spinal fluid can be aspirated into the syringe. If so, change the position of the needle until no fluid nor blood runs into the needle. Labat states that often if no fluid can be aspirated this is not positive proof that the needle may not be in the spinal canal and that the only certain method of keeping the needle out of the canal is not to pass it beyond 6 cm. After this unfortunate occurrence I carried on quite a lengthy correspondence with Dr. Labat. I described this case to him and asked him if he could tell me why the patient died. Of course the correspondence was unsatisfactory as he did not see the patient and did not know me nor my technic, but after summing up the matter I feel certain that I put the needle in too far.

I have used caudal anesthesia in a number of cases and have never had any accidents nor any bad results except in this case which I wanted to bring to your attention.

I make it a rule never to put anything in the rectum. Of course, Dr. Graves made the point that nothing should be put into the rectum except when it is necessary to control hemorrhage. If you do put anything into the rectal canal you will have pain. In my cases I have never had a post-operative hemorrhage.

In regard to the after treatment and the movement of the bowels, I have adopted the plan of starting these patients on mineral oil as soon after the operation as possible and in two or three days the bowels will move.

DR. WILLIAM E. ANDERSON, Farmville: I would like to take about two minutes to say hemorrhoids can be operated on with local anesthesia fairly well. Local anesthesia will in many cases prove entirely satisfactory, but, when there is to be a considerable number of hemorrhoids removed, especially when high up, general anesthesia is preferable and the clamp and cautery is the procedure for removable.

DR. WALTER COX, Winchester: I came over especially to hear this important paper, and I was very much interested when he said he had performed the operation practically without pain. This is the first question patients always ask me.

We have a very peculiar situation at Winchester. Three of my patients have refused to go to the sur-

geons for fear of the pain. These people are going to some quacks at Grand Rapids, Mich. These people, Burleson Bros., have a painless operation for hemorrhoids. I know this because I have talked personally with patients—and they get results—some form of electric treatment. I have examined three people who came back most enthusiastic.

I have been trying to find out their methods, have written for equipment, etc. These people put the patient on the table twice in severe cases, but in other cases only once. They do it by putting some kind of electric needle in the rectum.

One man was cured of prolapse of the rectum, hemorrhoids and fistula. I would like to know more about these people and in some way learn the secret.

DR. ————: I do considerable rectal work. I took some work under Dr. ————*, of New York, and I would like to say he never dilates the sphincter, never uses deep traumatism, as it increases discomfort. During my stay with him he had good results with evidences of very little pain.

He never uses opiates, whether done under local or general anesthesia. He has written several books on diseases of the colon and rectum.

DR. GRAVES, closing discussion: I want to thank all of the gentlemen for their discussion. It is very nice to have them bring out these important points.

I think Dr. Cox must have gotten the wrong idea about the opiates. I said I sometimes used a hypodermic of morphia. I operated on a young man a few days ago who had right much pain, but he is the first one I have had to give more than one dose of morphia in the last several cases. The report that Dr. Cox gave of an unusual treatment for hemorrhoids reminds me of some other treatments that used to be considered cure-alls. One especially was the cancer cure. These quacks guaranteed to cure cancer with a paste. One application of the paste was enough. One dose of salvarsan used to be considered a cure. I feel sure that all of you will recall some of these cases returning for further treatment if they only lived long enough.

*Stenographer failed to obtain names.

URETERAL CALCULI.*

By JOHN H. NEFF, M. D., University, Va.

This paper is based in the main upon an analysis of the clinical records of fifty-eight cases of ureteral calculi. While the group is not a large one, a review of the contained data may at least emphasize points of symptomatology and diagnosis which can hardly be restated too often. Certainly this is true if judged by the statistical revelation of diagnostic error.

The most striking, yet not surprising, fact disclosed by this study was the inability in any instance to ascribe a definite cause for the stone. It was uniformly assumed that the calculus had formed in the kidney, from whence it had entered the ureter and there lodged. Hunner believes that a goodly proportion of ureteral calculi develop primarily in the ureter, that a pre-existing ureteral stricture is responsible for the inauguration of the stone forming process. While it was evident from the size of some of the stones that considerable increment must have occurred after entrance into the duct, our analysis yields no information of either a positive or negative character about Hunner's theory. The researches at the Mayo Clinic in recent years place greatest stress on abnormal bio-chemical processes and specific infection as the important etiological factors in lithiasis rather than on mechanical obstruction. A discussion of the many theories of stone formation, however, would lead one far afield and is beyond the proper limits of an avowedly clinical summary. The solution of the problem will aid materially in the prevention of recurrences but it is rather probable that calculi will continue to be the most frequent cause of serious ureteral obstruction.

It is will-nigh axiomatic that obstructive lesions in the upper urinary tract are commonly deceptive in their symptomatology. No exception to this rule is found in the series under discussion. Characteristic renal colic, with its severity and typical radiation from the kidney to the bladder or bladder to the kidney and the further frequent extension to the external genitalia and down the thigh, is too clear cut and too familiar to warrant mistake in diagnosis. But our records show that in one-third of the patients the pain departed from what might be called this text book type.

In fifteen per cent of the series all the pain is stated to have been in the lower quadrant of the abdomen. The most usual site was at a level just within the midpoint of Poupart's ligament and from here radiating downward. The predominant pain in a few has been further out toward the umbilicus and with practically no extension elsewhere. Eleven patients—eighteen per cent—have had all their pain in the upper half of the abdomen, most pronounced usually in the kidney region, but only too often infringing on the so-called gall-bladder territory or, as complained of in one case, even most marked in the epigastrium. The ready possibility of diagnostic error in either the upper or lower right abdomen is quite obvious where such pain is associated with active nausea, a little temperature and some tenderness. One unique case had no pain whatsoever. This patient was admitted with a quite typical history of left side pyone-

*Read at the fifty-fourth annual meeting of the Medical Society of Virginia in Roanoke, October 16-19, 1923.

phrosis. Routine X-ray examination of the urinary tract revealed a characteristic shadow in the line of the left ureter but also a very suggestive shadow on the right side. Cystoscopic study demonstrated conclusively that the shadow on the right side was a stone and the stone was removed by operation. We have seen many cases of silent renal calculi but this is our first experience with a symptomatic quiescence on the part of a ureteral calculus.

Error in diagnosis is naturally more liable to occur with stones on the right than on the left. Thirty-eight of the fifty-eight cases had their stones in the right ureter. In this group, four —ten per cent—had had abdominal operations for the same symptoms prior to recognition and removal of a ureteral calculus. Four appendectomies and one exploration of the gall-bladder composed the list, one of these operations being accredited to us and three to other surgeons. In another ten per cent of these patients with right sided stones, our pre-operative diagnoses were wrong, somewhat retrieved possibly by the fact that the true condition was discovered at operation and corrected. The diagnoses in these four latter cases were,—appendicitis twice, gall-bladder disease once, appendix abscess once. The diagnosis of an appendix abscess was made in a patient admitted as an emergency with signs of an acute inflammatory process in the abdomen, exquisite tenderness and an ill-defined mass just medial to the anterior superior spine of the right ilium. The condition proved to be a ruptured ureter with extensive extravasation of urine secondary to a calculus. Two of these patients for whom our pre-operative diagnosis was incorrect had been X-rayed with negative findings and also cystoscoped, one with ready catheterization of the suspected ureter, in the other the ureter could not be entered because of spasm. A wax tipped catheter was not used in the first patient; the examination was not repeated in the second. Either by ourselves or other surgeons, therefore, the appendix or gall-bladder have been unjustly inculpated in twenty per cent of the patients with right sided stones, and in ten per cent unnecessary operations were performed. These figures lend support to the argument for an incision sufficiently large for thorough exploration where the pre-operative diagnosis in the right abdomen is in any degree uncertain, and suggest further that exploration must be carried out no matter how many concretions in, bands about, or kinks of a non-inflamed appendix are found.

In a bare majority of the patients tenderness was elicited either in the kidney region or along the course of the ureter. Tenderness has, of course, been greatest in the presence of an accompanying pyelitis or pyonephrosis, though anything approximating heavy infection has been relatively infrequent for the whole group.

The urine was negative for pus or blood in four instances, that is, seven per cent of the series. The urine of thirty-one patients contained blood and pus in various proportions, sixteen cases only pus, seven only blood. There was a wide variation in the cellular content of the urine from the same patient upon repeated urinalyses.

The X-ray examination was negative in six of the fifty-five exposures, a percentage of eleven. In each of these six cases the calculus was later demonstrated by other means—by its passage, by operation, or by the cystoscope. The fallibility of the X-ray in demonstrating ureteral stones is, of course, well recognized by surgeons and urologists. It is possibly doubtful if general practitioners realize that some excellent roentgenologists make the statement that the failure of demonstration is as high as twenty or twenty-five per cent. Certainly the average patient seems to hold the conviction that the X-ray is all revealing and can tell no lies.

It has also to be borne in mind that characteristic pain, a positive urine, and seemingly typical shadows on an X-ray plate do not fully justify a diagnosis of ureteral calculus. The suspected shadow must be proven to be a stone by cystoscopic methods, alone or in conjunction with the X-ray. Thus we have had occasion to identify a calculus by use of a wax tipped catheter in nine instances, by a ureterogram in another nine cases, and by demonstrating apposition of the shadow and an opaque catheter in fifteen cases. Failure to prove the nature of suggestive shadows may lead to unnecessary operations upon the ureter. For example, we have found pyonephrosis the true condition in a man previously operated upon for ureteral calculi but none found. The first diagnosis had rested on a basis of typical colic, a bloody urine, two shadows low in the pelvis and a bloody efflux from the right ureter.

A plate with a leaded catheter in the ureter showed the shadows were extra-ureteral.

The cases here reported have been seen during the past fifteen years. During this period there has been what might be termed a revolutionary change in the treatment of ureteral calculi. Some years ago the choice lay between a policy of waiting for spontaneous passage or operative removal. The development of cystoscopic technique, however, and the various additions to the cystoscopist's armamentarium by such men as Lewis, Buerger, and others have completely altered the situation. Patients now seen in their early attacks where calculi are small are advised to play a waiting game, provided of course there are no unusual complications, and many of them pass their stones without much difficulty. For the others, where the stone has evidently become caught in the ureter and bids fair to hang at any point, cystoscopic manipulations to aid passage are begun and, if patiently carried out, are rewarded with a high degree of success. Operations are relegated to the last position, to be undertaken only where cystoscopic methods fail or where the condition is an emergent one.

Twenty-three patients of our series have remained under cystoscopic treatment until either the stone was passed or else we decided that our manipulations were futile. Cystoscopic efforts were successful in twenty-one of the twenty-three cases. Of the two failures, no progress had been made in one after some seven treatments and the stone was therefore removed by operation. In the second case, presenting a very low stone and a heavy infection above it, there was retrograde migration to the kidney probably during a quite severe reaction following the third dilatation. The calculus was later removed from one of the middle calices.

In these cystoscopic treatments we have employed the usual bougies, catheters, scissors and dilators of different types. The preliminary instillation of a little four per cent cocaine solution at the site of the stone has seemed to help materially in lessening pain and, by decreasing spasm, has rendered much easier the passage of an instrument by the obstruction. Olive oil has been injected freely for lubrication, primarily for the entering instruments and secondarily for the stone coming out. We prefer, if possible, to get two or more bougies or catheters by the stone and so far this procedure has seemed more valuable than any other. As a rule, bougies have been left in position for twenty-four hours and have then usually come away with a marked drag, probably bringing the stone down into the grasp of the duct below the old point of lodgement and thus into a position where the expulsive efforts of the ureter could be more effective. The Lewis dilator has been used at least once in practically all cases. In one patient, a stone caught first at the orifice was readily freed by incision of the meatal lip with scissors.

The average interval between treatments has been about ten days. More than three treatments have been required in only three patients, viz., four, six and eight. The calculi have been situated in the lower portion of the ureter in twenty of the twenty-one successful cases. It is quite probable that a fair number of the stones would have been expelled without any instrumentation. Eleven of the twenty-one patients, however, had had attacks of colic for eight months or more, fifteen for more than two months. Only six were seen within ten days of the first attack of renal colic.

Sixteen patients of the whole series have come to operation. Immediate surgical attention was demanded only in the case with a ruptured ureter and extravasation of urine. Operative procedure here was limited to extensive extraperitoneal drainage. An entirely extraperitoneal ureterotomy was done in seven cases. In eight patients the peritoneum was first opened, the stone located, milked upward if possible, the ureter exposed with the aid of a hand within the abdomen, the peritoneum closed and the operation from this point carried out as in a primary extraperitoneal exposure. Opening the peritoneal cavity has been time saving, certainly where the calculus was deep in the pelvis. In all operations the ureteral incision has been sutured and we have found it distinctly helpful to place the sutures just after the duct has been incised upon the stone, but before the stone was lifted out. Routinely the ureter was dilated at and below the point of stone lodgement.

The average duration of hospital convalescence in these operative cases was twenty-four days. There was no leakage of urine in eight cases, some leakage in four, data as to this feature was lacking in the remaining histories.

The one post-operative complication was a femoral thrombosis followed by secondary pulmonary infarcts.

There was one operative death. This occurred in a woman with marked argyria, fifty-eight years of age, who presented an infected hydronephrosis due to a stone in the mid ureter. Because of her poor condition, a rubber tube was first placed to the kidney through the flank but did not drain well. Her temperature continued high and the stone was removed in the hope of securing better drainage. No improvement resulted and the patient died some six days later.

We have received reports from eleven of the twenty-one successful cystoscopic cases and none of those reporting have had further trouble. Thirteen of the fifteen cases surviving operation have reported. Nine have had no trouble since leaving the hospital, four have later passed stones.

In conclusion, the analysis of this case series justifies emphasis of the following points:

1. The urine, X-ray findings, and type of pain may be quite misleading in ureteral stone cases. Where there is even a remote possibility of a stone being present, complete urological study is demanded.

2. Cystoscopic manipulations should receive a thorough trial in uncomplicated cases of ureteral calculi before recourse is had to operative removal.

PAPILLARY ADENOCYSTOMA OF THE PANCREAS.*

By GEORGE TULLY VAUGHAN, M. D., LL. D., F. A. C. S., Washington, D. C.

It seems that infections of the pancreas occur more frequently than cysts or neoplasms. Carcinoma is the most common of the new growths. In 11,472 necropsies, Segre found 127 cases of carcinoma and two of sarcoma. Hale White found one case of sarcoma in 6,708 necropsies. According to Deaver and Pfeiffer, carcinoma is the most common tumor of the pancreas, forming one per cent of all cases of carcinoma. The secondary are more frequent than the primary, coming from the stomach or biliary passages—ten per cent of gastric carcinomas extending to the pancreas—while the most common benign tumor is the cystadenoma.

Various forms of cyst may occur, as retention cysts, cysts from inflammation or hemorrhage, hydatid cysts, malignant cysts, and congenital cystic disease.

A cystoma is a neoplasm in which cysts make up some part of its structure. Such tumors are found frequently in the ovary and breast but rarely in the pancreas.

According to Ziegler the papillary adenocystoma constitutes a common variety of cystadenoma. "It is characterized by the fact that *papillary* excrescences develop in glands which have undergone cystic dilatation. In the ovary or breast such excrescences are usually slender and delicate, forming villous-like or cauliflower elevations which fill a larger or smaller part of the cysts. Larger papillae are always more or less branched and consist of a cellular stroma whose surface is covered with tall cells of the character of goblet-cells. The contents of the cysts consist of ropy mucus mingled with desquamated cells which have undergone mucous degeneration. Papillary adenocystomata show a certain degree of malignancy."

Haubold (*Princ. and Practice of Surg.*) says "Proliferation cysts of the pancreas are usually multilocular . . . and pathologically two types are recognized, the benign cyst-adenoma and the cystic epithelioma which is malignant. In many instances the clinical course is the determining factor as to the malignancy of the growth, it being often difficult histologically to differentiate between them.

Kemp (*Dis. Stom. Intest. and Pancreas*, 1917) says that among the true cysts of the pancreas we have retention cysts and proliferation cysts or cystic neoplasms. The latter are cystic tumors due to spontaneous proliferation of the epithelial elements of the gland with accumulation of fluid in the cavities so formed, and may be simple or malignant. Proliferation cysts or cystic neoplasms are characterized by irregular gland-like growths below the epithelial lining of the cyst and by the presence of papillary projections from the cyst lining. Sotti, under the name of adeno-cystoma papilliform, describes a tumor of the pancreas with metastases in the lymphatic glands and lungs.

About 173 cases of operations on cysts of the pancreas have been recorded (1917).

Partial extirpation of the pancreas has been carried out, according to Glaessner, twenty-eight times with fourteen operative recoveries and fourteen deaths.

*Read by title before the fifty-fourth annual meeting of the Medical Society of Virginia in Roanoke, October 16-19, 1923.

My case is as follows:

Mrs. W. C. C., white, 64 years old, had an ovarian cyst removed twenty years ago—the nature of the cyst is not known. For several years has been troubled with "indigestion." About ten days ago she was taken with severe pain in the right hypochondriac region, chills, fever, and leucocytosis of 14,000. No jaundice but cholecystitis was suspected at the time. When seen by me with Dr. Crosson, her pulse was running from 80 to 120 and temperature from 99 to 102, leucocytes 14,000. There was no diarrhea or glycosuria. There was slight fullness and tension in the epigastrium and tenderness which extended clear across the abdomen. The diagnosis was tentative; ulcer of the stomach or duodenum, cholecystitis, pancreatitis, or appendicitis.

At the operation slight adhesions were found about the liver, gall-bladder, and stomach, and a mass in the head of the pancreas behind the duodenum. On account of its intimate adhesion to the descending duodenum and the numerous blood vessels, the mass was opened through the duodenum by an incision through its anterior wall, and a small incision through the posterior wall directly into a cavity in the mass from which about a teaspoonful of tissue looking like granulation tissue was scooped out. On passing the finger into this cavity, a second cyst was broken into from which the same kind of material was scooped out.

The incision in the anterior wall of the duodenum was then closed, but the one in the posterior wall communicating with the cyst cavities was left open. The gall-bladder and ducts seemed normal to palpation. The abdomen was closed without drainage.

The patient became delirious in a few days, with irregular heart action, then coma set in and death five days after operation, perhaps from acidosis.

The fragments of tissue removed were examined by Dr. Neuman and pronounced papillary adenoma.

1718 *I Street, Northwest.*

THE GATEWAY OF DIGESTION.*

By M. O. BURKE, M. D., Richmond, Va.

Embriologically the mouth is not a part of the gastro-intestinal canal, and in the early development of the foetus the mouth is separated from the canal by three membranes. The gastro-intestinal canal is derived from the primitive gut (the fore-gut, mid-gut and hind-gut) which is formed by the infolding of the hypo-blast.

"The buccal cavity is formed from the external (the epi-blast) layer of the blastodermic membrane, which passes inward and meets the pharynx or upper part of the fore-gut. The two cavities are, however, at first completely separated from each other by all the layers of the blastoderm, but at an early period of development a vertical slit appears between them: this gradually widens and becomes the opening by which the common cavity of the nose and mouth communicate with the pharynx."

The mouth is a complex and a compound organ: complex in that it is made up of various parts linked together; compound in its ultimate object of aiding digestion. The lips hermetically seal the opening of the mouth when necessary; prevent air from entering and saliva from escaping; is especially useful in retaining food during mastication, and in protecting the teeth and preventing the mouth from becoming dry.

The teeth are of three kinds—the incisors for cutting, the canine for holding and tearing, and the molars for grinding. The tongue is for tasting, testing the consistency, mixing the food with saliva, changing the mass from side to side, and finally for carrying the mass back into the pharynx and assisting in deglutition. The sense of touch is more highly refined in the tongue than any other part of the body. The salivary and mucous glands are for keeping the mouth moist, moistening the food so it can be swallowed, digesting a part of the starch, and secreting an antiseptic. The mouth is a *mill* for grinding food, a *mixer* and a *stoker*. In many of the lower animals it is also a *harvester*.

The saliva must possess some healing properties as manifested by lower animals in always licking their wounds and sores. Yet we know that the saliva of man and beast is often a powerful poison. It is said that the bite of a blue gum negro is as poisonous as the fangs of a rattlesnake.

A mouth may be clean and pleasant to inspect, but some are veritable cess pools. When we stop to think that the pleasure of eating is in the mouth and that all of our food passes through the mouth, we are forced to realize the importance of keeping the mouth clean.

*Read before the fifty-fourth annual meeting of the Medical Society of Virginia in Roanoke, October 16-19, 1923.

The mouth does not absorb food or water but some drugs and poisons can be taken up by the membranes of the mouth.

The digestive functions of the mouth are preparatory rather than complete. We sometimes feed patients through a stomach tube. If we had no mouth or only an exposed pharynx, all food would have to be especially prepared and we would be deprived of the pleasure of eating.

The three preliminary acts are mastication, insalivation and deglutition. Insalivation and deglutition depend largely upon mastication. All vegetable and animal food is composed of cells. The cells are surrounded by capsules or cell membranes. The capsule must be broken or removed before the digestive juices can produce the chemical change necessary for absorption. Heat and moisture are important elements in the rupture of the capsules; saliva furnishes moisture and a chemical that aids in the dissolution of vegetable capsules; mastication increases the flow of saliva and the grinding process should aid in breaking some of the capsules. An enormous amount of work is done each day by the mouth. It has been estimated that the daily pressure exerted by mastication amounts to about 1,700 pounds.

When food is properly cooked, we find the cells swollen and nearly every capsule broken. When improperly cooked the cells are shrunken and the capsule unbroken and often surrounded by a moat of grease. Such food is necessarily hard to digest and must depend upon the chemical dissolution of the capsule before the cell can be reached. Food that is slightly masticated is difficult to swallow and requires extra time and effort for the digestive secretions to penetrate the masses. Mastication is very essential to good digestion. Sound teeth and a healthy mouth are necessary for mastication.

Good digestion and a healthy mouth are important to good health.. The mouth is frequently the starting point of grave diseases. Rosenow has shown that streptococci from various organs have an affinity for the same organ when injected into the circulation of another animal. Can we not expect to find a similar embryological condition in the human body? A focal infection in the blastodermic derivatives is more likely to produce trouble in organs or tissues derived from the same membrane.

"It has been proven that the mouths of all adults and most children contain bacteria," but it does not follow that every individual is infected by these bacteria.

The skin and mucous membrane are immune to bacteria so long as there is no break in the continuity or the presence of material to act as a culture media. The membrane may be healthy and its continuity intact and still support a deposit on which bacteria may propagate. Some bacteria generate a toxin which may destroy the membrane and thus gain an entrance. Even then the bacteria may be destroyed by the white cells and plasma of the blood.

The importance of dental prophylaxis is emphasized by Keyes' observations in an Orphan Asylum, where the percentage of infectious diseases was reduced fifty per cent at the end of six months and to approximately two per cent during the following year.

During the last decade, infant mortality, typhoid fever, deaths from tuberculosis and diphtheria have been greatly reduced. The average life span has been increased about twenty years, but the death rate from forty-five to sixty-five is greater than ever before. Nephritis, heart disease and arteriosclerosis have claimed most of the victims. Focal infection of the mouth has been found to be a frequent cause of these troubles. The way we eat and the way we live may account for many more.

204 *East Franklin Street.*

THE CHRONIC PATIENT.*

By R. L. RAIFORD, M. D., Sedley, Va.

The biggest question which faces the medical profession today is the "Chronic Patient." The wonderful strides made in surgery in recent years have been the marvel of the ages for attainment, and have placed this branch of medicine in a position of distinction of which we may well be proud. Such men as Pasteur, General Gorgas, Dr. Reed, and Stiles have gained undying fame in the realm of communicable diseases. The abdomen and other forbidden parts of the body are now explored and treated with impunity. The once dreaded swamp and morass have long since become virtual garden spots and so safe for health that their fertile soils are inviting settlers from the far corners of the earth. Thanks to vaccine and the passing of the stegomyia, no longer is

*Read before the fifty-fourth annual meeting of the Medical Society of Virginia in Roanoke, October 16-19, 1923.

mankind harassed by the scourges of smallpox and yellow fever, and diphtheria has been robbed of much of its terror by the early and scientific use of antitoxin. The teaching of sanitation and cleanliness has been instrumental in hurrying such diseases as typhoid and the serious diarrheas of infancy down the long road of the dodo and the mastodon. School inspections and free clinics are fast placing in the reach of everybody the chance to prevent or have treated most acute diseases of childhood or adult life, and the triumph of skill has lessened the terrors of serious wounds and injuries. The wild cry of "Mad Dog" from a scared populace is well-nigh forgotten to the youth of today, and the horrors of the Great White Plague are rapidly being dispelled by its early recognition and treatment on the part of the physician and the healthful co-operation to this end on the part of the patient.

The modern physician can conscientiously and with the satisfaction of the knowledge of hard fought battles of science and well earned laurels of achievement swell out his chest and point to these and many other singular and most worthy advances in the early and accurate diagnosis and most commendable treatment of a very large per cent of the acute diseases to which human flesh is heir, but when we turn to the "Chronic Patient" we have only to observe the pompous display of ill-gotten gain and wealth of the quack and the charlatan to read in these facts the sad story of our own inefficiency and failure to properly diagnose and treat this group of unfortunate patients.

We will assume as an undisputed fact that the average sick person first seeks the aid of a regular practitioner of medicine and it is only after failure to get the relief sought for here that he is finally induced by the flattering promises of the irregular to seek aid from this source.

We will, therefore, assume further, as a foregone conclusion that, cuss the quack as we may, legislate against him in the most severe manner possible, the indisputable fact still remains that so long as we, as a profession, fail to recognize and cure the ailments of the chronic ambulatory patient, just so long will there be material on which these impostors will fatten and grow rich.

One by one the so-called idiopathic diseases are being stricken from the list. Such terms as idiopathic peritonitis, idiopathic heart diseases and idiopathic pleurisies no longer have a place in the vocabulary of the modern physician. And yet how we cling with deathlike tenacity to customs old and revered! Only a few weeks ago quite a learned doctor discussed lengthily with me, holding out against any argument I could muster, that both insanity and epilepsy were in the main purely functional and had no real physical cause. He might as well argue that your faithful Ford, without cause, gets cranky at times and will not run properly.

Medicine and surgery were founded largely in an atmosphere of empiricism. The pioneers in this branch of science knew nothing of the modern laboratory methods of checking their physical findings, and yet we must still take off our hats to the splendid accuracy of their deductions. Therefore, rheumatism instead of being of an infectious origin was a diathesis, and malaria instead of being due to a parasite was of a miasmic nature; and such fallacies were common all along down the line of diseases. This guesswork in diagnosis was more than eclipsed by a guesswork treatment and nothing was ever exact. The consequence is that men who still practice empirical medicine get on fairly well with acute diseases which are quickly over. Here, nature, with a little expert assistance, will make a cure in a large per cent of cases and the attending physician often gets the credit for doing more than he has really done. No matter if he has made a slip and called typhoid, malaria, or a mild scarlet, roseola, so long as the patient recovers promptly, little harm in the individual case is done.

Not so, however, with the "Chronic Patient." Here, nature has for a long time been making a supreme effort to restore the disabled organism to normal, but some hidden chronic infection of an obscure nature is continually pulling down as fast or faster than she can rebuild. Neither does the over lauded medication which gets so much undue credit in the self-limited diseases help us much more with our chronic patients. The consequence is that we flounder around, first using one much vaunted remedy and then another until we lose confidence in ourselves and our patients lose confidence in us; so that the desire to change to another doctor or even a quack is welcome news to us. The outcome of it all is that we get disgusted with such inexact haphazard

methods of diagnosis and treatment and this, perhaps, accounts for so many good men laying down their profession for the business world.

But the light of a new day is dawning and, when it opens up in the full radiance of its noonday sun, we shall no longer guess our diagnoses and apply a fantastic empirical remedy which so frequently does such little even imaginary good. We shall recognize the fact that having eliminated abuse of our systems and an inherited tendency towards certain diseases we have left, trauma and infection to account for the remaining ailments of mankind, and that the most of the high sounding names of diseases to be found in the usual treatises on medicine are in fact merely names for the varying symptoms of some obscure underlying infection which must be rooted out if we will really cure our patient.

The fact is that one of the greatest drawbacks to the advancement of medical science has been this giving of so many names to the same pathological entity. In trying to classify disease according to these names, one often becomes lost in the confusion, making the reading of medicine tiresome and often disgusting, thus, in part at least, accounting for so many men not keeping abreast of the latest advances of the profession.

We must not lose sight of the fact that the primary focus of infection so often gives no local symptoms of pain or discomfort and yet may be the cause of havoc being wrought in some other even distant part of the system. High blood pressure, nephritis, appendicitis, gall-tract infections, heart diseases, indigestions, rheumatic conditions, the various skin diseases, the psychoses and many other so-called diseases so often are due to some obscure infection and are preventable if taken in time or often curable if treated from this standpoint. Who of us are not continually having patients come to us stating that Dr. A pronounced her case nervous indigestion. Dr. B called it a nervous heart condition, Dr. C thought it was simple neurasthenia, but Dr. X was sure it must be gaseous dyspepsia, and so on down the line *ad infinitum*, according to the predominating symptoms when the patient was seen, when a painlessly infected incisor or an impacted molar may have been the true cause of all the category of symptoms?

Preventable medicine is not finished by the controlling of communicable diseases, however much we may laud this particular branch of work. The restoration of a chronic dyspeptic by the removal of a gall-bladder or an appendectomy, however commendable, does not exclude the fact that these are often or perhaps always only secondary to the real primary cause which should have been corrected in early life.

Proper institutional provision for those unfortunate citizens suffering from the various forms of psychoses is most laudable but, if as being demonstrated by some of the best men of our land, these are just tail-end results of a long-standing hidden infection, we must learn to recognize the earlier symptoms of these infections and by proper treatment prevent the inroads on the mentality of this class of patients. Or, having failed in this, we must still hunt for and root out, where possible, such infections and give these unfortunates the best possible chance to be restored to normal, mental and physical health again.

The surgeon of today realizes that his post-operative infections are not altogether dependent on a rigid aseptic technic. More and more stress is being laid on the preliminary cleaning up of the infections of the teeth, tonsils and sinuses, to the end that it may possibly prevent the need of many major operations altogether and make those that are necessary less hazardous and more beneficial to the patient.

Obstetrical records could also be robbed of many a tragedy had some chronic ailment been recognized and the hidden infection causing it been cleaned up before or even during the pregnancy.

If we, therefore, assume that the average chronic patient who comes to us is ailing from some infection, often obscure and elusive, then the natural deduction would be that to render any permanent benefit we must work towards the end of removing this infection. In order to carry out effectively such a line of treatment, we must necessarily know where to look for such an infection. Fortunately for the diagnostician, the mouth and nose may be considered the primary ports of entrance in a vast majority of cases. Fortunately, too, we may still find the causative infections located in the nose, throat or mouth in a large percentage of our cases, making them comparatively easy to locate and remove. But not finding the offending infection in these sites should not discour-

age us in our hunt for it when symptoms indicate that such an infection really exists. No chronic patient should be considered properly examined until we have at least checked up on the teeth, tonsils, nasal cavities and accessory sinuses, uterus, prostate and rectum, as well as all organs located in the chest and abdomen. Furthermore, having found and cleaned up one or more points of infection without relieving symptoms should not discourage us to look still further for and eradicate other foci, and we should never consider ourselves beaten until we have located and cleaned up every accessible point where hidden germs may be lurking.

In conclusion, let me say that if we pay less attention to empirical medicine and look in every case for a definite cause for the symptoms of which our chronic patients complain, we will speedily find that we will not only get better results but our work will at once become vastly more interesting and give us a feeling of satisfaction we have not experienced before.

A closer study of disease from this angle will convince us:

First: That a very large proportion of all sickness and mortality is chargeable to infections;

Second: That many of the chronic and so-called incurable diseases of middle or late life can be prevented by the early removal of the primary infection, or may even yet be much benefited or often cured by treating them from this standpoint;

Third: That in obstetrical and surgical cases, complicating infections and mortality may be greatly reduced by a closer study and removal of all focal infections, where possible, before operation, and

Fourth: That, by considering the symptoms of all our chronic patients as of an infectious origin, where a given effect is always preceded by a definite cause, we will have made a long stride towards finally and completely rescuing the practice of medicine from an antiquated and long outlawed empiricism and placing it in the forefront among the other exact sciences.

A GOOD GUESS.

The doctor's small son was entertaining a friend in his father's office, and they were looking with awed admiration at the articulated skeleton in the closet. "Where did he get it?" asked the small guest in a whisper. "Oh, he's had it a long time. I guess maybe that's his first patient!"—*Life.*

MAN, THE PHYSIOCHEMICAL COMPLEX. ELECTRICITY AND THE ELECTRON. REASONING AS A CHEMICAL REACTION, RESULTING IN AN ATOM COMPLEX THOUGHT.*

By CHARLES ELMORE BOWLES, M. D., Pulaski, Va.

In presenting a paper of this character it is necessary that I mention numerous accepted theories and recognized facts, derived from the various fields of scientific endeavor, and select those laws under which the particular phase of this most intricate and complex system exist. For no definite conclusions can be reached until definite laws can be applied with equal force to the chemical, biological, physiological, psychological and cosmic processes. I shall follow three definite laws and attempt to show that man and his thoughts are chemical in nature, controlled and developed by the operation of these laws.

1. The law of chemical valences.
2. The law of complexity.
3. The law of attraction and repulsion.

According to the law of chemical valence, certain chemical elements and compounds attract certain other elements, the reaction taking place under the stimulus of a definite form of energy. Through this law we come to understand the behavior of a chemical reaction, and why certain elements enter into the compound, while others in the surrounding are left out. Applying this law to conditions existing in the late cosmic or archeozoic era, when the waters of the cooling globe held various chemical elements in solution, we find conditions ripe for marked chemical reactions to take place and for the chemicals to combine into higher and more complex formulae, each combination attracting or appropriating special types of elements until the compound became so complex and delicate, that further stimulation produced a blending of the elements, one into the other, so that the compound now acts as a single unit or chemical cell. The cell having retained the energy generated by the reaction, thus became endowed with internal motion and the transition from inorganic to organic was accomplished.

Various theories concerning the special elements involved and the particular form of energy appropriated have been advanced but

*Read before the fifty-fourth annual meeting of the Medical Society of Virginia in Roanoke, October 16-19, 1923.

all agree that organic sprang from inorganic. That life arises from earth and water, we find to be the opinion of Aristotle and since then the same views have been held by philosophers, poets, theologians and laymen. Lucretus said that all things are produced out of the earth, forming in the rain water and the warm vapors raised by the sun. Ross, in the seventeenth century, said that to question this is to question reason, sense and experience. In the scientific theories of today, we find according to Pfluger, that the cyanogen radical is an integral part of the molecule complex of living protoplasm and that this radical contains a large amount of internal energy, and in this way energetic internal motion is injected into living matter. According to Pfluger's hypothesis, there arose a simple homogeneous material, from which has evolved the highly differentiated protoplasmic mass or cells of organic life today.

Allen says that solar energy, acting on the damp earth containing the raw materials, caused dissociation and rearrangement of the atoms. Then further reaction, catabolic and anabolic, occurred by virtue of the nitrogen compound. This constructive process continued until organic life became manifest.

Osborn asserts that water, nitrates and carbon dioxide, which are known to be essential to the perchlorophylic and chlorophylic stages of the life process, were brought together so as to capture and transform the electric energy of the chemical elements, characteristic of protoplasm.

In Moore's theory, we see albumin and silica in colloidal form appearing in solution or suspension in the waters of the cooling globe. These combining with other chemical elements, as the temperature permits, form solution aggregates or complexes, in which the unit of chemical structure passes from atom to molecule. Moore applies the law of complexity to this, that matter, so far as energy enviroments will permit, tends to assume more and more complex form in labile equilibrium, atoms, molecules, colloids and living organisms, arising as a result of this law. The sensus of opinion seems to be that there was a gradual blending of the elements, until they could no longer be distinguished in the protoplasmic cell.

It is impossible to analyze protoplasm for, in disturbing the fundamental organization, that is, in breaking up the compound, we cause a cessation of those phonomena characteristic of life, leaving matter in the non-living state before us. Living protoplasm is a colloidal complex, comprising chiefly the elements carbon, hydrogen, oxygen, nitrogen, sulphur, phosphorus, sodium, calcium, potassium, chlorine, iron and magnesium. Certain combinations of these, in the form of carbohydrates, proteins and fats, are distinctly characteristic of protoplasm and are not found elsewhere in nature. The manisfestation is clearly a physiochemical complex and its fundamental phenomena is energy. It consists in appropriating energy from its environments and using it to develop higher complexes. One of its peculiarities is its proneness to change its composition under the stimulus of slight changes in the energy equilibrium between itself and its surroundings. By applying the three fundamental laws, chemical valence, complexity attraction and repulsion, we see the chemical or protoplasmic cell appropriating energy and selecting certain chemical elements from its surroundings and gradually developing another compound or nucleus within itself, which is later expelled as a new cell. Finally, through changed conditions and the incorporation of new elements, a new type of cell is developed, which likewise selects elements in accordance to its new valency.

In this way the cells gradually became differentiated into the various tissues and organs of the body, each related but being composed of one or more different elements, therefore having a different function or action, as the chemical reactions or metabolic changes occurred in the body. These facts are very pertinent when we recall that the chemical composition of the body is as follows: Water 66%, nitrogen 3.1%, hydrogen 2.1%, carbon 15.8%, calcium 2.5%, phosphorus 1.2%, oxygen 6.7%, iron, sodium, chlorine, iodine, potassium, fluorine, sulphur and magnesium in varying quantities. The action or function of the various tissues or organs depends upon the particular elements and the proportion of the elements composing them. The muscle contains phosphate of magnesium, potassium, sodium, iron and potassium chloride; connective tissue has silica as its specific substance, while elastic tissue contains calcium fluoride. The bony structure contains calcium fluoride and magnesium phosphate, with a large amount of calcium phosphate. Cartilage and the mucus cells have for their specific inorganic material sodium chloride. This also occurs in

all solid and fluid parts of the body. The hair and crystalline lens have iron and other inorganic substances, while the nerve tissue, which has now become an isolated system, contains phosphate of magnesia, chlorine, sodium, potassium and iron. From this we see that while all the tissues are closely related, yet each contains some specific inorganic substance which causes its function and appearance to differ from that of the other tissues with which it has a common origin.

The brain, the highest type of tissue, not only differs from the other tissues of the body, but the various groups of cells differ from each other, just as the different portions of the internal organs differ, this difference being brought about by the particular chemical combinations forming the cells in each part of the organ, as a result of gradual chemical differentiation.

The brain substance also shows itself to be chemical on analysis, but we must remember that this organ has probably been developing for some 500,000 years or more or since the early Paleozoic era and that Paleolithic man had reached the verge of intelligence. That since that time there has been an ever increasing rapidity in the differentiation of the brain cells. After ages of development, we still find it to contain such substances as lipoids or phosphorus bearing compounds, composed chiefly or lecithin and kephalin. These phospholipins are chemically phosphoric acid in combination with neutral fats and a nitrogenous base, cholin. From lecithin the glycerophosphates are derived, while cholestrol, an alcohol, is also found in the brain. From what has been said, it will readily be seen that any disturbance in the chemical composition or deficiency of inorganic supply, immediately affects the protoplasmic cell, so that its accustomed energy will no longer cause a reaction, and a pathological condition results. The end products of proteolysis, as amino-acids, may be catabolized by bacterial action, with the result of toxic amines. These intering into combinations with the chemicals in the tissues produce a disturbance, so that the cell is no longer sensitive to its accustomed energy. This occurring in the brain tissue produces sluggish or confused reactions. Doubtless man, the physiochemical complex is in reality a delicate and highly developed series or complex of inorganic chemical compounds, which is constantly appropriating energy and elements and blending them in protoplasmic form, and in which there is ever occurring a vast congeries of chemical reactions.

Electricity and the Electrons.

Dr. J. S. Hughes, of Kansas State College and chairman of the biochemical division of the American Chemical Society, recently read a paper before that society, in which he stated that thought is a chemical process and that nerve impulses are purely electrical energy; that whenever the lipins surround the water in the nerves, they become ready conductors, but if the water surrounds the lipins they are poor conductors. He is now carrying out experiments along this line. To me it seems that the nerve impulses, which are doubtless electrical energy, are conducted by the rapid vibrations and interchanges of the electrons, composing the nerve cells and fiber, and that the electric energy is generated by the chemical change taking place in the protoplasmic cell, just as in the original cell as it passed through the transitional stage from inorganic to organic. The brain cell, being a highly developed chemical complex, and containing certain inorganic elements, undergoes a definite chemical reaction, when stimulated by the electric energy derived from its surroundings. The source of this energy may be a chemical reaction in some distant organ or tissue of the body or other brain cells but, for our purpose, I shall consider only those derived from the organs of special sense as a result of some external impression or psychic phenomena. In investigating energy, we find that certain waves are absorbed and others reflected and the effect on the sense organ is modified by the type, length, duration and intensity of the energy or electronic wave, as demonstrated in Young-Helmholtz and Herings theories of color sensations and the skin reaction in sunburn. The absorbed rays produce a chemical reaction and, when affecting the skin, result in the familiar blister and a change in the valency of the tissue, so that the rays are now reflected and produce no further effect.

The flower placed by the window leans toward the light for the reason that here the direct rays produce a reaction on the side of the plant exposed to the energy and the elements are drawn from the other parts of the plant to supply the needs of the reaction. Therefore, the plant becomes more developed on this side and is drawn over. Some plants

and chemicals develop or react better in low temperature and in these cases the condition would be reversed. The sense organ of sight acts similar to plants, when exposed to direct rays of light, the reaction taking place in the rods, cones and pigment of the retina. The rods become colorless and the pigment increases in color, the light first producing a visual yellow and then a visual white, and, if the length, duration and intensity is sufficient, inflammatory changes occur.

This also applies to the other sense organs, and the organ of hearing probably undergoes a chemical change or interchange of electrons between the endolymph and crystals of calcium carbonate in the capsula. Since we see that there is an actual absorption of energy or electronic waves by the chemical tissues, which results in a reaction, it is necessary that we know the composition of these electronic waves before we can determine the particular reaction and know what result to expect. In order to do this it is necessary that we keep before us the fact that all matter is composed of molecules, molecules of atoms, and atoms of electrons, and that all nature is in constant motion and undergoing chemical changes or reactions. In the reactions, certain atoms and electrons are combined while others are displaced or repelled, just as certain elements are combined and others expelled in forming compounds. This is more clearly explained in the phenomena of osmosis. Here we find that water is a fluid the molecules of which are in constant motion. Pure water has the formula H_2O and these molecules undergo practically no dissociation into their constituent atoms and for this reason it is not a conductor of electricity.

Sugar solutions for the same reason are not conductors.

Solutions of most of the salts, bases and acids, are conductors of electricity, since these substances undergo dissociation and the simpler materials into which they are broken up are called ions. These ions are simply groups of freed electrons. If sodium chloride is dissolved in water, it becomes a conductor, for it is broken up into two electrically charged parts or ions, the sodium ion being charged with positive electricity and the chlorine ion with negative. Solutions of hydrochloric acid contain free positive hydrogen and negative chlorine ions. The term ion is not equivalent to atom, for it may contain enough electrons to form a group of atoms. The negative charge is equal to the positive charge, but, in the case of sulphuric acid, there are two positive hydrogen ions and only one negative SO_4 ion. Substances which have this property are termed electrolites.

In a simple electric battery, containing a zinc and copper plate immersed in dilute hydrochloric acid, potential electricity is produced when the acid attacks the zinc and pulls zinc or positive ions into the solution. This gives a positive charge to the solution about the zinc plate, increasing the potential difference and repelling the positive hydrogen ions toward the copper plate, where some of them enter the copper atoms, forcing copper electrons to the next portion of the wire, etc., through the wire. The reduction of the zinc atoms causes the chlorine to be attracted to this pole, where the same interchange takes place between the chlorine and zinc plate. The excess of hydrogen and chlorine is deposited on the respective plates, as is seen in electro plating. When a contact between the wires takes place, the two circuits flow in opposite direction through the wire. Should the wire be applied to tissue, the electrons composing the electrodes would pass into the atoms of the chemicals composing the tissues and, by increasing the atomic weight, convert the molecules into a new element and cause a chemical reaction to occur. That the electrons actually pass from the wire is clearly demonstrated by the experiments of J. J. Thomson, of Cambridge, England, and Perrin, of Paris, in studying the cathode rays. According to Thomson, these cathode particles are the primordial particles out of which the seventy odd atoms known to chemistry are built up. The chief difference between the various atoms of chemistry consists in the number of these particles or electrons which enter into them, the hydrogen atom containing about 2,000 electrons, the oxygen atom 32,000, the mercury atom 400,000, etc.

The number of electrons entering the wire depends upon its composition and the solution used. Copper and zinc in solution of hydrochloric acid produce an electromotive force of one volt. Carbon and zinc produce one and one-half volts, but copper and carbon produce much less than one volt. By changing the solution, we can still further modify the voltage, the electromotive force depending upon the materials of which the cells and conductors are composed. The resistance of materials

varies greatly and is increased directly in proportion to its length and inversely, in proportion to its size. Applying these facts to the nerve tissues, which consist of phosphorus, magnesium, sodium, chlorine, potassium and iron, we find it well provided with electrolites which readily undergo dissociation, with the result that the ions or electrons, by rapid vibration and a series of interchanges, convey the impulse through the nerve fiber and cell to the brain and, entering the atoms of the chemicals forming the brain cells, produce the reaction or reasoning which results in a chemical compound, thought. These facts would lead us to believe that electricity is nothing more than the electrons or ions thrown off or repelled by the chemical reaction or interchange and traveling at the stupendous speed of from 100,000 to 300,000,000 meters per second. When these rapid traveling electrons or ions come in contact with the sense organs and are absorbed by the atoms of the chemicals composing the tissue, the atoms become more complex and an actual increase in weight occurs. This increased atomic weight, changing the valency of the molecule or element, causes the chemical reaction to occur in which other electrons are liberated or repelled. These interchanging through the nerve fiber cause a reaction in the nerve cell, and thus repel ions to which one or more dendrites of the next cell are sensitive, and in this way direct the impulse over a definite root.

In the nerve, as in the wire, whenever the passage of the electrons or current is partly obstructed or resistance increased, there is a piling up of the electrons, and many become liberated or thrown off as heat. Where this occurs in the tissues, the temperature is raised and some of the liberated ions enter into combinations with the chemicals composing the cells, resulting in an atomic compound, thought, in the case of the human brain cell, or muscular action in the case of muscle. These reactions would also liberate certain electrons or positive or negative charges. That this actually occurs is seen by the experiments of Reymand and later perfected by Herman. These investigators, by attaching a galvanometer to two portions of a detached muscle, found that the amount of electric current produced in the muscle could be measured. The energy was the result of the chemical reaction in the muscle, produced indirectly through the nerve or directly by muscular contact. The stimuli may be chemical, mechanical, electrical or thermal, but in each of these there must by an interchange of electrons, between the stimulus and the tissue for, in the case of a chemical stimulus, the appropriated electrons or ions is the electricity or energy that causes the reaction. The nature of the chemicals in the tissue becomes changed as a result of the increased atomic weight. To illustrate, the hydrogen atom contains 2,000 electrons; then suppose that 30,000 electrons are repelled by the stimulus and absorbed by the hydrogen atom, we would have an atom composed of 32,000 electrons, or oxygen. The compound containing this new element would immediately react and unite with other elements to form a new compound, with the liberation of definite ions. This occurring in the nerve ending would cause a reaction to continue throughout the nerve and at the end of the nerve; the repelled ions would cause a reaction in the brain cell, resulting in a definite atom, sensation or thought. The ions entering the brain cell are the sensations received from the outside world, the atom compound resulting being the implanted memory impression or thought. These ions or sensations, being appropriated by another cell, are grouped together, so as to form a more complex atom, or perception. Likewise the perceptions are grouped or blended to form conceptions, or a still more complex atom. The sensation, perception, conception, etc., probably each affect only one atom of the millions of atoms composing the cell. Later, whenever an exactly equal and like stimulus is applied to the same nerve terminal, another atom becomes changed. This continues, until finally all the atoms in the molecules of the cell become so complex that the molecules become changed into new elements. The positive or negative sign of the molecule is thus changed, so that the sensations or ions from the stimulus are now repelled. There is virtually a damming back of the ions or current in the nerve, until the sign of the sense organ becomes changed, or the poles of the magnet reverse. At this point we fail to receive or are not conscious of further sensations or ions of the same kind, since electrons of like kind repel each other. Electrons of the opposite sign would now be necessary, in order to produce a further sensation or reaction. This doubtless explains why we become insensible to our surroundings or

definite forms of stimuli and yet react to others.

In the above illustration, we changed the composition of the tissue from positive to negative elements by the addition of psychic energy or negative electrons. Applying this theory to any of the special senses, it can readily be demonstrated that fatigue, sleep, or a change to the opposite sign is produced in direct proportion to the type, duration and intensity of the stimulus or electronic application. Fatigue is a partial saturation of the elements with ions of the opposite sign and sleep a greater saturation, the waking phase occurring when some of the molecules become changed and attract ions of the opposite sign. Death probably results from an intensification of the same process or the disintegration of the complex.

As a physiochemical complex, conforming to the same laws that govern the universe, man must react and develop whenever the electrons, sensations or impressions from the outside world are absorbed by the atoms composing the molecules of the tissue cells. To summarize:

Man is a chemical complex, reacting under the influence of definite forms of energy or ions.

Energy or electricity consists of definite groups of electrons or ions.

Chemical elements are converted into higher elements and caused to react by appropriation of energy or ions.

The ions appropriated by the brain cells in the association centers are what we term sensations and the grouping of these sensations or ions into perceptions, conceptions, etc., form more complex atoms and finally new chemical elements.

Our surroundings, whether appropriated through sight, hearing, taste, smell or feeling, become a part of us and, increasing the atom complex, result in a chemical reaction.

Psychic energy actually produces chemical elements and reactions in the brain and body on man.

DISCUSSION.

DR. L. G. PEDIGO, Roanoke: Because we do not discuss it, we do not wish Dr. Bowles to think the paper was not appreciated.

One idea set forth by Spencer is that all progress evolves differentiating homogeneous bodies of complex, and all papers are based upon the current idea in this line of investigation that nerve force and electricity are identical. Personally, I do not believe this. They are indestructible, but if we investigate the dynamic relation of nerve forces to various insulating, conducting areas, we find a great difference.

DR. BOWLES, closing: Dr. Williams asked if it was a known fact that the electrons produced a chemical change in the brain? It is not a known fact. The paper is based upon the experiments of J. J. Thompson, of Cambridge, and Perrin, of Paris, with cathode rays. Thompson found that the cathode rays are deflected by a magnet or electro static charge, as was to be expected if they were negative charged, and Perrin proved that they actually imparted negative charges to the body on which they fell. The X-rays are not deflected by a magnet or by electro-static charges and do not carry electric charges. On this ground, Thompson formulated the theory that these cathode particles are the primordial particles out of which the seventy-odd atoms known to chemistry are built up, the difference between the various atoms consisting in the number of these particles.

Applying this to the chemical body and brain, it seems only logical to conclude, that when a sensation, ion or electric charge, reaches the brain cell it is deposited in the atom, as one of the sensations producing perceptions, conceptions or a more complex atom or thought. I am now carrying on a few experiments along this line, following the principle that the electrons or ions actually pass through the wire and by using various cathodes of different materials, hope to inject these substances into the body.

CHORIOANGIOMA: REPORT OF A CASE.*

By R. M. PAGE, M. D., University, Va.

Mrs. J. M., a primipara, 28 years of age, was admitted to the University of Virginia Hospital, March 4, 1922, and was delivered the same day of a male child. It was a normal baby and there were no birthmarks. It weighed 2850 gm. Labor was spontaneous and at term. There was a normal amount of bleeding. The placenta was expressed 20 minutes later without difficulty.

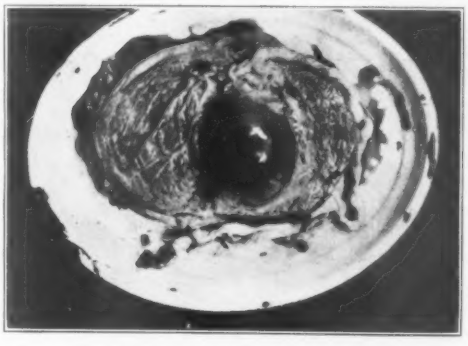

Fig. 1—Chorioangioma. From above.

On examination, this appeared normal except for a dark red tumor about 8 cm. in diam-

*Read before the fifty-fourth annual meeting of the Medical Society of Virginia in Roanoke, October 16-19, 1923.

eter presenting on the foetal side. The measurements of the placenta were 19x12x2 cm. The whole was hardened in 10% formalin. On section after hardening, the tumor was found almost spherical and approximately 6 cm. in diameter. It was darker in color and more spongy in consistency than the normal placental tissue. It was separated from it by a well defined capsule. The membranes which covered it on the foetal surface were smooth and glistening.

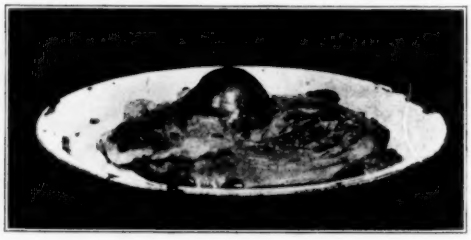

Fig. 2—Chorioangioma. Side view.

The following is the microscopic report by Dr. W. E. Bray of the University of Virginia Clinical Laboratory:

"Sections show a placental tumor undergoing marked regressive change, situated in the membranous portion of the chorion. The tumor consists of numerous blood capillaries, varying in size and shape and containing blood of fetal type, with many nucleated red cells, a few of which are in mitosis. The capillaries are lined by flattened endothelium, but owing to the hyalinization about the capillaries, many of the lining cells are not seen. No mitoses are seen in these cells. There is only a moderate amount of stroma, which is

Fig. 3—Chorioangioma. Section through.

of the embryonic connective tissue type. At the margin of the tumor there is a band of loose connective tissue which is relatively free from blood vessels, forming a thin capsule and separating the tumor from the trophoblast.

"There is marked hyalinization of the stroma, especially about the capillaries, and this is so marked toward the center that the stroma takes a diffuse acid stain.

"*Diagnosis*: Chorioangioma (capillary hemangioma), with hyalinization of stroma."

There are approximately 100 cases of tumor of the placenta on record. The majority of these belong to the group of hemangiomata, of which this case is an example. As noted by Williams,† there is very little to be found on this subject in American medical literature. Williams' article has a pathological description by Mallory and is illustrated.

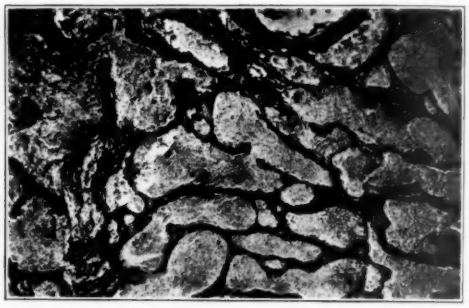

Fig. 4—Chorioangioma. Microphotograph x 75.

This case is reported on account of its rarity. From the reports in literature, about half of the cases were associated with some complication of pregnancy or parturition but, on account of their infrequent occurrence, they are insignificant as causes of these complications.

†Williams—Angioma of the Placenta Surgery, Gynecology and Obstetrics, February, 1921, Vol. XXXII, pp. 523-526.

ETHYLENE-OXYGEN ANESTHESIA: A Report of 116 Anesthesias.*

By J. S. HORSLEY, Jr., M. D., Richmond, Va.

Ethylene is an unsaturated hydrocarbon (C_2H_4) and is found in nature as a constituent of coal gas. At ordinary temperatures and pressures it is a colorless gas having a peculiar ethereal odor and a somewhat sweetish taste. It can be prepared by heating a mixture of sulphuric acid and ethyl alcohol. It has been used commercially in a more or less pure form for several years for heating, lighting and welding.

The anesthetic properties were first observed and studied by Crocker and Knight of the Hull Botanical Laboratory of the University

*Read before the Richmond Academy of Medicine, February 12, 1924.

of Chicago in 1908. Their investigation was brought about by an attempt to discover the cause of large losses sustained by carnation growers shipping their products into Chicago, who found when these flowers were placed in greenhouses they would "go to sleep," and buds already showing petals failed to open. Their study of the effect of illuminating gas, of which ethylene forms approximately four per cent, on flowering carnations, showed that ethylene was the chief constituent which determinded the toxicity of the gas for plants. ". . . One part of ethylene in 2,000,000 parts of air caused the already open flowers to close, on twelve hours' exposure, whereas one part in 1,000,000 prevented the opening of buds already showing petals." (Luckhardt & Carter). Because of these effects of ethylene on plants, Luckhardt started his investigation of the toxicity of ethylene for animals. We are indebted to Dr. Arno B. Luckhardt, Associate Professor of Physiology at the University of Chicago, not only for the discovery of ethylene as a gas anesthetic, but also for his scientifically thorough experimental and clinical work which is making its universal use safe and possible. The introduction of no other general anesthetic has ever been accompanied by such general satisfaction and such a low incidence of accidents and complications.

In August, 1922, Luckhardt and Carter, of the University of Chicago, completed their work on the physiologic properties of ethylene gas on laboratory animals, which work has since been confirmed by Brown, of Toronto. Nine months later they reported the first 106 cases in whom operations had been performed under ethylene-oxygen anesthesia at the Presbyterian Hospital, Chicago. Up to the present time there have been no other published reports of cases of ethylene-oxygen anesthesia except those of Luckhardt and Lewis, who reported 800 cases performed at the Presbyterian Hospital, Chicago; Brown, of Toronto, who briefly mentions a few cases; and Lundy, of Seattle, who reports its use in four infants. A good many other clinics, such as the Mayo Clinic, are using this anesthetic and verbally report its satisfaction.

October 9, 1923, Dr. Luckhardt first demonstrated ethylene-oxygen anesthesia in Richmond by having the anesthetist of St. Elizabeth's Hospital anesthetize him. Following this very personal demonstration, the first ethylene anesthesia in Richmond for operative procedures was given under his supervision. That night before the Richmond Academy of Medicine he again had his personal demonstration of ethylene, as most of you recall. Since that time, with the exception of a short period during which our ethylene supply was out, we have been using ethylene-oxygen as our routine anesthetic instead of nitrous oxide-oxygen and ether which we had previously used.

This preliminary report of 116 consecutive anesthesias of ethylene-oxygen anesthesia at St. Elizabeth's Hospital, Richmond, Va., largely confirms the clinical observations of Luckhardt and Lewis. Of these 116 anesthesias, 6 were inductions for ether, 15 were ethylene-oxygen and ether combined, and 95 were straight ethylene-oxygen.

Pre- and Post-Operative Medication.

The usual pre-operative routine of "no breakfast, soap suds enema and ¼ grain of morphin sulphate with 1/120 grain of atropin sulphate given ½ hour before operation" was followed in nearly all of these cases. This was done in order to obtain a fair comparison with the nitrous-oxide-oxygen and ether anesthesias which had gone before. With ethylene anesthesia, morphin seemed to be a distinct aid in the production of the anesthetic state, and atropin seemed to be unnecessary, as there was no excessive mucus or moisture of the respiratory tract which occurs with ether. Most of the cases, with the exception of those following operations upon the gastro-intestinal tract, carried out the customary post-operative orders of "flat in bed, ¼ grain of morphin sulphate every four hours s. o. s. for 24 hours, hot or tap water ad lib," and had weak tea or fruit juices begun in small quantities after 24 hours.

Induction.

The ease and rapidity with which anesthesia was induced was very striking. The absence of struggling and excitement was usually marked. Only three patients out of 116 anesthesias struggled during the induction period. These were robust men of questionable alcoholic history, and were extremely nervous just before the anesthetic was started. Unlike nitrous oxide-oxygen and ether, ethylene produced a sense of well-being and comfort, and a feeling of "fading away," and lacked the

whirling, pounding, frightening sensations which so commonly accompany ether, and to a less extent, nitrous oxide inductions. The average time for induction was 2.3 minutes; the shortest ½ minute and the longest 5 minutes.

Relaxation.

Relaxation was not as complete as with ether, and more complete than with nitrous oxide. Relaxation was found to be satisfactory in *all* types of operations outside of the peritoneal cavity. This included amputation of extremities, radical amputation of the breast, rib resection, nephrectomies, vaginal and rectal operations, thyroidectomies, neck dissections, nerve and tendon suturing, prostatectomies (perineal and suprapubic), etc. Except in unusually muscular and robust young adults relaxation was satisfactory in all intraperitoneal operations of the lower abdomen. In 34% of the upper abdominal operations relaxation was complete enough to permit operation; in the remaining 66% relaxation was unsatisfactory, and ether had to be used during a part of the operation. Even in the latter cases ethylene anesthesia was an advantage for much less ether had to be used and then only for about half the period of anesthesia. Two resections of the colon, 1 pylorectomy, 2 gastro-enterostomies, 2 cholecystectomies, were done with perfectly satisfactory relaxation.

Color

The color of the patients approached nearer the normal than with any of the other general anesthetics. Cyanosis was strikingly absent. The skin was usually pink and occasionally almost a cherry red. When cyanosis developed, the anesthetic was being improperly administered.

Slowing of Pulse Rate.

The average pulse rate before, during, and at the close of the anesthesias was carefully noted, and a slowing of the pulse was found to be a characteristic of ethylene-oxygen anesthesia.

A pulse of 120 per minute before operation would drop to 90 per minute as the patient became relaxed, and would remain there. Some drops were more and others less marked, the pulse usually approaching and maintaining its normal rate for the individual while at rest. In very severe and prolonged operations the pulse rate rose toward the end, but no case was noted where the pulse rate increased when the nature of the operation itself did not account for the increase.

Absence of Respiratory Irritation.

Excessive secretion of saliva or mucus did not occur with ethylene. In 116 anesthesias, there was not a single case of post-operative respiratory complication which could be attributed to the anesthetic. Patients with mild acute pharyngitis, coryza or bronchitis upon whom we used to refuse to operate, at least temporarily, were given ethylene-oxygen anesthesia and in no case was the condition made worse. The two cases of active pulmonary tuberculosis gave no evidence of extension or irritation of the process following major operations under ethylene-oxygen anesthesia.

Absence of Sweating.

Two very important factors in the production of surgical shock are the loss of body fluids and chilling. Every one is familiar with the marked diaphoresis accompanying ether and, to a less extent, nitrous oxide anesthesia. This condition of the skin promotes chilling, a fact which is important not only as one of the causes of surgical shock, but also as a factor predisposing to complicating respiratory infections. A dry, warm skin was a striking characteristic of ethylene anesthesia. Sweating did not occur when the anesthesia was smooth and properly given.

Oozing.

In some cases there seemed to be a slight increase in the oozing while ethylene was being given. This fact, however, has not led to any poor results or complications.

Rapidity of Recovery.

The rapidity with which patients recovered from ethylene-oxygen anesthesia was quite striking. By recovery, I mean the length of time from the moment the anesthetic was stopped to the time the patient recognized persons and answered questions sensibly. One patient recovered in 2½ minutes after an anesthesia of 2 hours and 28 minutes. The average time for the patient to become rational after the anesthesia was stopped was 1.7 minutes; the shortest ½ minute, and the longest 7 minutes. The margin of anesthesia for ethylene was narrow and that occasionally

made it rather difficult to give smoothly. When the anesthesia was lightened too much, the patient would suddenly partially wake from a peaceful sleep and frequently swallowed or gulped, or made some spasmodic movement of the abdominal muscles. Manipulations about the diaphragm when the patient was not deeply anesthetized often brought on these movements which largely explained the poor relaxation in operations upon the upper abdomen.

Post-Operative Nausea and Vomiting.

The causes of post-operative nausea and vomiting are numerous. The anticipation of the operation, the administration of morphin, the operation itself, and the effects of the anesthetic, all are important factors in the production of these very disagreeable symptoms. It was fairly common to have patients retch and spit up some clear fluid as they reacted. Thirty-seven per cent of our cases did this. Most of them did not remember this seemingly unpleasant occurrence. Nausea and vomiting were less following ethylene anesthesia than following any other general anesthetic in our hands, moderately less than nitrous-oxide-oxygen and decidedly less than ether. Vomiting of one or more times occurred in 39% of the patients following ethylene.

Two of the very nervous female patients complained of brief "fainting spells," sometimes accompanied by nausea.

Post-Operative "Gas."

The occurrence of post-operative intestinal "gas" was strikingly low, and no case developed the marked and obstinate distention, not so infrequently encountered following ether. "Gas" was a discomforting feature in 20% of the cases.

Safety.

Luckhardt and Carter have shown that when ethylene gas is pushed to the limit in dogs, the respiratory center fails first, and at a time when the force and frequency of the heart are quite normal. Artificial respiration quickly restores the animal. Death from nitrous-oxide-oxygen is sudden and caused by cardiac syncope, the patient rarely, if ever, being resuscitated. The longer nitrous-oxide-oxygen anesthesia is kept up, the more dangerous it becomes. For these reasons alone ethylene is much safer as an anesthetic than is nitrous oxide. No latent after-effects were noted. The study of post-operative urinalyses, kidney functions, blood counts, blood smears, hemoglobin determinations, etc., showed no evidence of any form of deleterious post-anesthetic change. The oldest patient was 79 years and the youngest 5 years old.

Concentration of Ethylene.

Forty-seven of the 116 ethylene-oxygen anesthesias were given by the Ben Morgan machine. This is primarily an ether machine which uses a gas as an induction anesthetic. The gas part of the apparatus simply consists of connections for the smaller size gas cylinders with a rubber re-breathing bag which in turn connects with a mask with an adjustable valve outlet. No accurate determination of the percentage of the gases used can be had with this machine, as the gas bag is filled only by the hand screws of the cylinders. Roughly it was thought that about four parts of ethylene to one part of oxygen was used. Incidentally, ethylene was found to be an excellent gas for an induction anesthetic for ether. It was superior to nitrous oxide, as may be judged from its properties and actions which have already been touched upon. The remaining 69 cases were given ethylene and oxygen with the Model G McKesson gas machine. It automatically feeds the gases from the cylinders into rubber bags where the desired pressure is kept constant and the gases are administered to the patient in known percentages. By means of this more accurate check a smooth and safer anesthetic could be given. It was found that the average percentage of ethylene necessary to maintain surgical anesthesia was 82%, and varied from 75% to 90%, according to the age, type of individual, and the depth of anesthesia or degree of relaxation desired. After about five minutes the patient became more relaxed and towards the end of a prolonged anesthetic a lower percentage of ethylene was required to maintain a deep anesthesia than was required earlier after induction. We have not used ethylene as a re-breathing anesthetic. We hope to report more fully on this factor in a subsequent paper.

Explosibility.

In the presence of oxygen, ethylene forms an explosive mixture, when brought in contact with a free flame. Brown claims that the

mixture having the greatest explosibility is one containing fifteen times as much oxygen as ethylene, so that with an ordinary anesthetic mixture the explosive action is not great. Luckhardt states that it is not quite so explosive as ether vapor. The electric cautery has been used in 41 of the 116 anesthesias without any trouble, although care is always taken to increase the operating room ventilation temporarily while the cautery is being used and the cautery is never used near the mask nor in operations on the head or neck. Carelessness in this respect may lead to an accident. It would seem, however, to be no more dangerous than ether vapor as regards explosibility.

Odor.

The odor of the gas is sweetish, somewhat like that of sorghum molasses. Only three patients distinctly objected to the odor. It was unpleasant to some visitors who were unaccustomed to it, but, when inhaled for anesthetic purposes, consciousness was so quickly lost that many of the patients did not remember any odor at all.

Opinions of Patients.

Practically without exception patients who had previously had other general anesthetics stated their preference for ethylene. Voluntary statements of the patients would go somewhat as follows: "Didn't mind it," "Liked it," "Greatly preferred it to ether," "Much better than gas (nitrous oxide)," and others were more or less indifferent toward it.

Failures.

We encountered one failure in a series of 116 operations. After five minutes of ethylene-oxygen administration this patient was still partially conscious and would move about. Ethylene was stopped and only after 25 minutes of ether by the open mask method did he become anesthetized. All other patients completely lost consciousness and remained quiet. Thirteen per cent, primarily the upper abdominal cases, failed to give proper relaxation and ether had to be added.

Illustrative Cases.

Amputation of Thigh—Case 1. W. R. L., an Indian man, aged 48, had received five months before entrance an extensive burn of the right leg while lying drunk in front of a fire. Attempts at skin grafting were made elsewhere, resulting only in marked suppuration and further deformity. He had had a diarrhoea, probably toxic in origin, for several weeks. On admission to the hospital his right leg from the knee down was suppurating and gangrenous, he had the appearance of an extremely toxic person, with marked emaciation, a very definite chronic nephritis and myocarditis, and a partially decompensating heart. Two days after admission his right thigh was amputated at the lower third under ethylene-oxygen anesthesia. Pulse before operation was 118, during 106, and at the close 96; period of induction was 4 minutes; time of anesthetic 34 minutes; time to become rational 2½ minutes. The color was excellent and the skin dry and warm throughout the anesthesia. There was no post-operative nausea, vomiting, gas, or complications. The entire anesthesia in this case was ideally satisfactory.

Cæsarean Section—Case 2. Mrs. S. D. B., a primipara of 37 years, had previously had left tube and ovary removed. On account of the patient's age, marked obesity, and a contracted pelvis, with breech presentation, a Cæsarean section and resection of the right Fallopian tube were done under ethylene-oxygen anesthesia. A normal 6½ pound boy began to cry as he was delivered. During and at the close of the operation the pulse was 100; time of induction was 1 minute; time of anesthetic 50 minutes, and time to become rational was 4 minutes. The color was pink, skin was dry and warm throughout the anesthesia, and relaxation was very satisfactory. There was no post-operative nausea, vomiting, gas or complications.

Excision of Colon and Enterostomy—Case 3. Mrs. E. E. R., aged 46, had previously had twenty-three operations done elsewhere. These operations consisted of cholecystectomy, radical amputation of right breast, operation for acute intestinal obstruction, four rectal operations, three sinus operations, and others. In addition to these troubles, she had become a morphine addict. On account of partial obstruction from extensive adhesions and disease of the colon, excision of the colon and enterostomy was done under ethylene-oxygen anesthesia. The pulse before operation was 110, during and at the close 138. Blood pressure before was 108/70, and after the operation 110/78; time of induction was 3 minutes; time of anesthetic 2 hours and 28 minutes;

time to become rational 2½ minutes. Color was pale pink and the skin was dry and warm throughout the operation. There was no post-operative nausea or vomiting, and slight post-operative "gas." This patient had had the previous twenty-three operations done under ether, nitrous-oxide-oxygen, local anesthesia, and combinations of them, and stated concerning ethylene-oxygen anesthesia, "Best anesthetic I've had." She should be amply capable of judging the value of anesthetics from the patient's point of view.

Appendectomy, Excision of Two Lipomata and Radical Mastoid Operation—Case 4. Mrs. W. L. A., aged 40, had an appendectomy, excision of a large lipoma of chest and one of left hip, and a radical mastoid operation performed at one time by two teams of operators, using ethylene-oxygen anesthesia. The pulse before, during and at the close of the operation was 72, time of induction was 4 minutes, time of anesthesia was 1 hour and 49 minutes, and the time to become rational was 4 minutes. The skin was pink, dry and warm throughout the operation. Relaxation was satisfactory. She had slight post-operative nausea, and spit up a small amount of clear fluid several times during the first eight hours. No post-operative gas or complications were present. The patient stated that she did not mind the anesthetic.

Repair of Vesico-Vaginal Fistula with Three Consecutive Ethylene-Oxygen Anesthesias—Case 5. Mrs. N. S. H., aged 62, had three consecutive ethylene-oxygen anesthesias during a plastic repair of a large vesico-vaginal fistula which was caused by a burn following an over-enthusiastic radium treatment for cancer of the cervix. She had a chronic nephritis, pharyngitis and larynigitis, and was considered a very poor operative risk. The anesthetics lasted 52, 65 and 27 minutes, respectively. They were completely satisfactory followed by no extension of the existing diseases and no complications.

Excision of Large Ovarian Cyst: Patient had Advanced Bilateral Pulmonary Tuberculosis—Case 6. Miss C. S. F., aged 42, had had a long-standing advanced bilateral pulmonary tuberculosis. For several weeks previous to entering the hospital she had given symptoms of partial intestinal obstruction with nausea, vomiting, abdominal cramps and distention. Examination showed very extensive bilateral pulmonary tuberculosis, with a large cavity at the right apex and a large abdominal tumor. Operation was begun with local anesthesia and on account of the many adhesions and incomplete relaxation ethylene-oxygen anesthesia was given. An adherent degenerating papillary-cyst-adenoma of the right ovary, 15 cm. in diameter, was removed, the adhesions were separated, and the partial obstruction was relieved. The pulse before the operation was 100, during 84, and at the close 130. The induction time was 1½ minutes, time of anesthetic 55 minutes, and time to become rational 2 minutes. The skin was pale pink, dry and warm throughout the operation. The patient showed a mild degree of surgical shock at the close of the operation from which she recovered readily. There was slight post-operative nausea, no post-operative vomiting, and only moderate post-operative "gas." No complications have set in, and there has been a definite improvement in the pulmonary condition.

Thyroidectomy With Comparison of Nitrous-Oxide-Oxygen and Ethylene-Oxygen—Case 7. Mrs. W. R. S., aged 45, had a typical exophthalmic goitre with a basal metabolism of plus 29. The left lobe of the thyroid was removed under local and nitrous-oxide-oxygen combined anesthesia. The pulse before operation was 126, during 130, and at the close 124; time of induction was 3 minutes; times of anesthesia 40 minutes, and time to become rational 2 minutes. The skin was good color, slightly moist and warm. The patient was very noisy, frightened, and incompletely relaxed. She vomited three times after operation, had a moderate amount of nausea, and no gas. Four days later the right lobe of the thyroid was removed under local and ethylene-oxygen combined anesthesia. The pulse before the operation was 150, during 124, and at the close 124. The time of induction was 2 minutes; time of anesthesia 37 minutes; and time to become rational 3 minutes. The skin was pink, dry and warm throughout the operation. There was no post-operative nausea, vomiting or gas. The patient was calm and quiet throughout and the relaxation was satisfactory. The patient stated that she liked the ethylene anesthesia much better than she did the nitrous oxide.

Upper Abdominal Operation With Incomplete Relaxation—Case 8. Mrs. B. M., aged 52, had a cholecystectomy, appendectomy, drainage of the common bile duct and separa-

tion of partially obstructing adhesions from the sigmoid and colon. After 12 minutes of ethylene-oxygen anesthesia the relaxation was still incomplete and ether was given along with the ethylene and oxygen for 44 minutes. The pulse before the operations was 120, during 100, and at the close 96; time of induction 3 minutes; time of anesthetic 1 hour, and time to become rational approximately 30 minutes. The skin was pink, dry and warm throughout the operation. Relaxation was satisfactory only after ether was added. There was a moderate amount of post-operative nausea, slight gas, and the patient vomited twice.

Summary.

Ethylene was discovered and used as a gas anesthetic by Luckhardt. A report of 116 ethylene-oxygen anesthesias occurring at St. Elizabeth's Hospital, Richmond, Va., in large part confirms the clinical observations of Luckhardt and Lewis.

The following points concerning ethylene-oxygen anesthesia were striking:

1. Beneficial effect of pre-anesthetic use of morphin and seemingly unnecessary use of atropin.
2. Ease and rapidity of induction.
3. More complete relaxation than with nitrous-oxide and incomplete relaxation in 66% of upper abdominal operations.
4. Absence of cyanosis and presence of pink color.
5. Slowing of pulse rate.
6. Absence of respiratory irritation and post-operative complications.
7. Absence of sweating and presence of dry, warm skin.
8. Slight increase in oozing.
9. Rapidity of recovery.
10. Low incidence of post-operative nausea and vomiting.
11. Low incidence of post-operative "gas."
12. Absence of any latent after-effects, and increased safety over other general anesthetics.
13. Average of 82% and limits of 75% to 90% of ethylene concentration to secure and maintain surgical anesthesia.
14. Explosibility of ethylene slightly less than that of ether vapor; caution in use of open flame and cautery in its presence.
15. Sorghum-like odor objectionable to only 3 patients.
16. Patients show preference for it over the other general anesthetics.
17. One failure for an anesthetic state, and failure to produce satisfactory relaxation for 13% of the 116 operations.
18. Report of eight illustrative cases.

Conclusions.

Ethylene-oxygen anesthesia produces a state of sleep more nearly that of normal than does any other general anesthetic. We feel that it is the most ideal routine general anesthetic yet known. It has made it possible for us greatly to lower the incidence of post-operative complications; to decrease largely the customary post-anesthetic discomfort; and to operaate on certain very poor operative risks which without ethylene operation would have either been refused or in all probability would have proved fatal.

References.

Brown, W. E.—Canadian M. A. J., March, 1923.
Ethylene as a General Anesthetic, Am. J. Surgery, 36:4 (Anesthesia Supplement), January, 1924.
Luckhardt, A. B. and Carter, J. B.—The Physiologic Effects of Ethylene, a New Gas Anesthetic, J. A. M. A., 80:765 (March 17), 1923.
Ethylene as a Gas Anesthetic: Preliminary Communication, J. A. M. A., 80:1440 (May 19), 1923.
Luckhardt, A. B., and Lewis, D.: Clinical Experiences with Ethylene-Oxygen Anesthesia, J. A. M. A., 81: 1851 (Dec. 1), 1923.
Lundy, J. S.: Ethylene and Oxygen as an Anesthetic for Infants, J. A. M. A., 82:448 (February 9), 1924.

St. Elizabeth's Hospital.

THE INSPIRATION OF MEDICINE.*

By JOSEPH T. BUXTON, M. D., Newport News, Va.

Every life is a gift from the Creator of all life, a gift not to be despised or lightly regarded, but to be used in the accomplishment of the purpose which prompted the gift. For back of every life is a purpose. And we may count ourselves a success only as we fulfill that purpose.

This accomplishment is not possible unless we set before us ideals just as high as the purpose which underlies our life. We may and probably will not measure up fully to these ideals but certain it is that we shall never attain to anything higher than the standards we set up. Every life should have its ideals.

To me the highest conception of life is to be

*President's address before the Seaboard Medical Association of Virginia and North Carolina, Newport News, Va., December 4-6, 1923.

found in him who seeks to understand and interpret the needs of the lives of others and then to administer to those needs. The keynote of any life that may be termed successful is expressed in one word, "Service." We live, not to be ministered unto, but to minister. Service, unselfish and sacrificial, if necessary, is the key which unlocks the door of glory and opens up to us those honors which fame cannot give and which money cannot buy. We live in "deeds not years, in thoughts, not in figures on a dial. He most lives who thinks the most, feels the noblest, acts the best."

Among the secular professions, there is none that offers a larger field or more abundant opportunity for genuine service than is to be found in the practice of medicine. It is a great and noble profession, worthy of the dedication of the best that is in us. It is impossible to estimate its value to the community and the opportunities it offers for service are well nigh unlimited. What greater inspiration can any man have than is to be found in the knowledge that in his work he may be a saver of life unto life and a contributor to the happiness of those whom he serves?

The first inspiration I would mention is that which is to be derived from the lives of those men who in the practice of their profession have immortalized their names by the contributions they have made to its advancement.

Time would fail me were I to attempt even to call the roll of all the illustrious men from whose lives we might gain some inspiration for a larger endeavor. I shall be forced to content myself with the mention of only a few, with the hope that from those suggested you may be inspired to make a study of others whose success was as a signal and who are equally, perhaps, entitled to our consideration.

It will not surprise you that in this connection I should make mention first of the name of Edward Jenner, of whom it has been said that, "the most consummate cynic must admit that, up to the present time, he has been the greatest benefactor of mankind the world has ever known." Of him it is said that the ignorant Indians declare "we shall teach our children to speak the name of Jenner and to thank the Great Spirit for bestowing upon him so much wisdom and benevolence."

His successful inoculation against smallpox 135 years ago robbed disease of one of the greatest scourges known to the medical world. In this day it is hard to appreciate the value of this great contribution. We have only to recall, however, some of the ravages of this dread malady to understand its significance. It is said that in the days of Empress Katherine more than two million souls perished in Russia alone. In the 16th century in Mexico three and one-half millions died, leaving scarcely enough alive to bury the dead. More than sixty million of people are said to have fallen victims to this disease alone in the century prior to the discovery of Jenner. Smallpox has been rightly called, "The most terrible of all the ministers of death." In Sweden, before vaccination, there were 2,045 deaths per million; since vaccination this number has been reduced to 155. In the Sheffield Epidemic, of the unvaccinated population, one in twenty died; of those who were vaccinated, one in thirteen hundred. Is any tribute too great to be paid to this great man?

October 16, 1846, was a real red letter day in the history of medicine, for on that day Dr. John C. Warren performed for the first time a major operation without inflicting pain. The discovery of anesthesia was the greatest boon ever given by the profession to mankind for the alleviation of pain. We have only to imagine a major operation without it to conceive of the horrors attendant upon surgery before its discovery. Not only so, but its discovery made possible the performance of many operations involving minute dissections, which prior thereto could not have been attempted. I have no doubt that in the final day of reckoning hundreds of thousands of men, women and children will rise to call John C. Warren "Blessed" for his great contribution to medical science. Ranking equally, probably, with the names of the two men to whom I have just alluded stands Joseph Lister, whose service to mankind can never be forgotten. Even after the discovery of anesthesia, surgery was still attended with much danger and many terrors. Before the discovery of antisepsis by Lister, blood poisoning, tetanus, and erysipelas were almost always attendant upon every operation. The result of the researches and investigations of Lister was to show to the surgeon how these terrors could be eliminated and life and health brought to many who otherwise would have

died as a result of the surgeon's knife. The name of Lister will live as long as man lives, for he lived to bless mankind.

Dr. William W. Keen, whose life itself has been and still is an inspiration to us younger men in the profession, in speaking of the place which such men have in the hearts and affections of those who today enjoy the benefits resultant upon their lives, makes the following beautiful comparison. He says, "In Mr. John Wanamaker's gallery is one of the most striking pictures I have ever seen. On a large canvas by Fritel, in the center of the picture, advancing directly toward the spectator, is a large cavalcade of warriors arrayed in corslet and casque. Their stately march at once arrests the eye. The leader is Julius Caesar. He is flanked by Napoleon and Alexander the Great and followed by Attila, Semiramis, and a lengthening host of those whom the world counts among its great 'Conquerors.' They advance between two long rows of rigid, ghastly corpses all stretched at right angles to their line of march. Spectral mountains in the distance hedge in a desolate plain given over to the vulture, the bat, and silence."

"I would that some artist might paint a companion picture of the 'conquerors in medicine,' instead of the 'conquerors in war.' Instead of spectral hills and a barren waste, the scene should be laid in a happy, smiling valley, bounded by the Delectable Mountains and kissed by a fertile sun. The stately procession should be led by Edward Jenner. He should be flanked by Joseph Lister and John C. Warren, and followed by Simpson, Billroth, Livingstone, Ambroise, Pare, Virchow, John Hunter, and many a modest, but unknown, hero who has yielded up his spirit in the performance of his duty. Instead of treading their way between lines of corpses, they should march between lines of grateful men and women and a host of God's little children who, on bended knee and with clapsed hands, would reverently invoke Heaven's richest benediction upon their deliverers."

The second inspiration, to which I would refer, is to be found in the unexplored fields awaiting discovery. Medicine is a progressive science and there are many secrets yet hid from us and many discoveries yet to be made. We rejoice in the victories already won by which countless thousands have been liberated from the dominion of disease. But there remains much still to be done. If we are true to our great profession, we will not sit idly by amid the ravages of the yet unconquered maladies but we will put to the best use the talents with which we have been endowed, in the hope that we may make some lasting contribution to the furtherance of medicine. Could there be a greater inspiration for the fullest dedication of our faculties than the possibility that by some service of ours we may be instrumental in alleviating human suffering and in bringing sunshine into those lives which heretofore have been dark? We have immense advantage over our predecessors for we have the heritage they have left us to build upon. Inspired by their successes and by what we may do we should suffer no limitations upon our endeavor.

Again I would invite your attention to the inspiration that comes from the faithful performance of the duties that come in the daily routine of life;—not the doing of the great things but the good we are able to do for the sick and suffering in the every day work of life. I refer to those ministrations about which no one ever knows but yourself and your patient. It may be the restoration of life to father or mother or child, it may be the lessening of suffering here and there, the bringing of comfort to one in distress or making easier the great transition of some soul who has been called upon to cease from its labors. This to my mind is the great inspiration of medicine. Dull and insensate indeed must be that man who is not moved thereby to the greatest effort of which he is capable. I can best tell you how great is this inspiration by adopting the language of another who in speaking of it has said:

"My best wish for you is that you may realize in your own lives these characteristics of the ideal physician. It will matter little then whether your life be long or short, for the proper measure of a life is not how long, but how it has been lived, and if you attain old age, when the hairs whiten and the crow's feet begin to show, when your natural forces are abated, you will then not be alone in the world, but will have honor, love, obedience, troops of friends, and one Friend above all others, the 'Great Physician.' And when you pass from this life into the next, then shall you be greeted not only by this one great Friend, but by many from whose pathway you have plucked the thorns and briars of this

earthly life; many whom, through the devious paths of convalescence, you have led back to perfect health, to home, husband, father, mother, children; and even if you have not been able to stay the hands of the Grim Reaper, those too will greet you whose last hours you have soothed amid the pangs of death and have helped through the new birth into the heavenly Jerusalem."

THE SURGICAL MANAGEMENT OF GALL-BLADDER DISEASE.*

By ARTHUR E. BILLINGS, M. D., Philadelphia, Pa.

There is still considerable difference of opinion as to the proper surgical treatment in disease of the gall-bladder. It is gratifying to see, as statistics in increasing numbers are being published from the large clinics in this country as well as from those abroad, that the same facts are being revealed which lead to uniformity of thought as regards the treatment of this very common lesion.

Two decades ago a patient who suffered from chronic dyspepsia with hematemesis was considered a fit candidate for gastroenterostomy. With a large number of operators at that time the actual demonstration of an ulcer was an unnecessary indication for the operation. We are all aware of the evil results that followed such a practice. Gall-bladder surgery, particularly cholecystectomy, has been abused much in the same way, but perhaps to a lesser degree. Much of this abuse can be attributed to failure in diagnosis or lack of judgment in the choice of the operation for the particular case, or both. The pathological intimacy that exists between the gall-bladder, appendix, duodenum and stomach which was not recognized until comparatively recently, served to complicate the diagnosis in gall-bladder disease. Such complications as chronic pancreatitis and hepatitis with hepatic insufficiency were not reckoned with in the treatment of this condition. In many instances a diseased appendix was removed or a gastroenterostomy was performed for duodenal ulcer while a pathological gall-bladder was left behind, with only partial or no relief to the patient. With our present knowledge of associated disease in these parts the discovery of a lesion in one should mean careful investigation of the other for concomitant disease. Certain conditions, such as acute infection, poor general condition of the patient, etc., may occasionally prohibit the careful exploration that should be made a part of the routine procedure in these cases. Proper preoperative preparation of the patient will help to avert this complication. Too much emphasis cannot be laid upon the importance of the preoperative treatment, particularly in the jaundiced cases where duct infection is extensive and a high degree of cholemia is present, for as much may depend on this as upon the operation for the successful outcome.

Jaundice is a complication that demands special consideration from the standpoint of both preparation and operation. If it has existed for any length of time it becomes a tremendous hazard to immediate surgery even of the most conservative character. In these patients toxemia is marked, the calcium content of the blood is greatly reduced or exhausted, dehydration has taken place, the alkali acid balance is broken, and blood coagulation time may be lengthened to an alarming degree: the glycogenic function of the liver is disturbed and, briefly, hepatic incompetency is the condition that supervenes. To combat successfully this condition the prompt introduction of fluid is imperative. This may be accomplished through proctoclysis in the form of soda bicarbonate and glucose solution, normal saline solution by hypodermoclysis, or by intravenous infusion, or both. W. J. Mayo recommends the subcutaneous administration of a three to a five per cent solution of glucose, which we have used to great advantage. The intravenous administration of calcium chloride solution is indicated in all cases where blood coagulation is retarded, combined with free carbohydrate intake by mouth as recommended by Walters. Crile advises blood transfusion with heat applied over the liver as a preoperative and postoperative measure to stimulate activity in liver function. In severe cases blood transfusion is indicated before and after operation. Walters and Parham have clearly pointed out the close relationship of renal and hepatic insufficiency in obstructive jaundice. They state that operations on patients with obstructive jaundice offer three avenues of danger aside from the so-called accidents of surgery; these

*Read by invitation before the Seaboard Medical Association of Virginia and North Carolina, at its meeting in Newport News, Va., December 4-6, 1923.

are hemorrhage, uremia and hepatic insufficieny. Walters and Bell of the Mayo Clinic have previously reported the necropsy findings in twenty-nine cases of obstructive jaundice in which serious postoperative hemorrhage had occurred in fifty-three per cent. A method of preoperative preparation was described and followed in thirty-four cases that have since come under their care, in only one of which did serious postoperative bleeding occur and in this case a ligature slipped on the cystic artery. Briefly, their treatment consisted in the administration of 5 c.c. of a ten per cent calcium chloride solution in redistilled water daily for three days. Large quantities of carbohydrates were given by mouth and glucose solution by proctoclysis in order to increase the supply of glycogen to the tissues of the jaundiced patient. Large quantities of water by mouth further increased the elimination of toxic bile products. In one of their cases a coagulation time of twelve minutes was uninfluenced by the administration of calcium chloride as directed above, after which blood transfusion was done and the coagulation time was promptly reduced to six minutes. They have not observed any toxic effects from the intravenous administration of calcium chloride either clinically or experimentally. The coagulation time should be reduced to normal limits to obviate the danger of serious bleeding after operation. A careful estimation of kidney function and blood urea should be made and ether anesthesia should be avoided. The tendency to uremia is marked in this condition and every precaution should be taken to safeguard the patient against it. It is one of the few conditions in which we do not use morphine routinely as an adjunct to the anesthetic. Gas-oxygen anesthesia is used routinely and with the very ill patients we combine it with local anesthesia, as advised by Crile. Biliary drainage through the duodenal tube, as advocated by Lyon, has proved of undoubted value in our cases as a part of the preparation before operation and of the after treatment.

The character of the operation in these cases is determined largely by the most urgent need which is biliary drainage; any operation of a more elaborate nature as a rule is contraindicated. If stones are found in the gall-bladder and common duct, a cholecystostomy with removal of stones should be done; if there is then doubt as to the establishment of successful drainage, a choledochostomy should be done with the removal of any easily accessible stones. Any extensive exploration is ill advised at this time and any remaining stones and the gall-bladder can be removed at a secondary operation when there is less danger of a thorough operation resulting in a casualty.

A two stage operation in many cases is certainly safer for the patient. As to the management of acute inflammation of the gall-bladder uncomplicated by jaundice, operation is deferred as a rule for several days. If the cystic duct is obstructed completely, suppuration may have taken place but, with rest and heat locally and careful attention to the patient's general condition and elimination, the process will remain localized and subsidence in symptoms will usually occur in a few days. With the liver above, the transverse colon below and the omentum ever ready for mobilization, the anatomic position of the gall-bladder is such that infection of the general peritoneum rarely takes place even if the gall-bladder perforates. We, as a rule, under these conditions do a cholecystectomy after the acute symptoms have subsided. A small piece of rubber dam used for drainage is held in position near the cystic duct stump with a fine loosely applied catgut ligature. Where the gall-bladder is very adherent and edematous and identification of the common duct is difficult, the splitting of the gall-bladder on each side down to the cystic duct, turning the anterior free flap down and then doing a submucous enucleation of the posterior half, as advised by C. H. Mayo, simplifies the operation very much and helps to obviate injury to the common duct. Infrequently the acute symptoms may persist and it may become necessary to operate before subsidence in the attack has occurred. Our results in the cases on whom we have operated during an attack because of persistent acute symptoms have been entirely satisfactory.

A display of surgical judgment in the choice of operation for this type of lesion is essential. Drainage of, rather than removal of the gall-bladder will be indicated in a small percentage of cases, but cholecystectomy is preferable when the patient's condition warrants it. In the chronic type of gall-bladder with or without stones, uncomplicated by obstructive jaundice, we usually do a cholecystectomy. There are several reasons for this practice. First, when chronic pancreatitis is present, chole-

cystectomy with prolonged drainage, either by choledochostomy or through the cystic duct stump, gives better results than any other form of treatment. Secondly, the end results from cholecystectomy are more satisfactory than from cholecystostomy as shown in the statistics from the largest clinics in the country. Judd, in reviewing 2,027 cases in the Mayo Clinic, summarizes his impressions as follows:

1. "Removal of the gall-bladder reduces the risk of later trouble and ordinarily is to be preferred to cholecystostomy for drainage.
2. "It is not necessary to open and probe the common duct at every gall-bladder operation.
3. "Infection in the liver, gall-bladder or ducts is the most frequent cause of secondary trouble and may recur many years after the primary operation.
4. "The recurrence of stones is more frequent in the gall-bladder than in any other part of the biliary tract; the common duct is next in point of frequency.
5. "In a definite small percentage of cases stones will be overlooked in the common duct, in other cases the stones reform in the duct."

Of the 2,027 operations in this series, 219 or 10-8/10 per cent were secondary. In 109 of the 219 secondary operations calculi were found either in the gall-bladder, the ducts, or in both. Balfour and Ross report from the Mayo Clinic 5,997 cholecystectomies from January 1, 1910, to December 31, 1919, with one biliary fistula. For the same period they report 1,879 cholecystostomies with eleven postoperative fistulae. They state that comparative statistics of experienced surgeons show that cholecystectomy has a decided superiority over cholecystostomy in every respect, operative mortality, immediate and late results and biliary function.

Statistics such as these are illuminating and convincing. The gall-bladder after infection is once established in the form of cholecystitis probably never recovers completely even after drainage. There is much evidence to substantiate this postulation. Chronic hepatitis and pancreatitis are associated infections or complications which are favorably influenced or obviated by timely removal of the gall-bladder. There is still a group of the chronic cases which are puzzling from the standpoint of diagnosis, in which there are no stones present but a rather definite history of gall-bladder disease with little or no gross evidence of cholecystitis on exploration except for a gall-bladder that does not empty easily on compression. Palpable enlargement of duct glands is usually absent, lipoid deposit in the wall of the gall-bladder may or may not be in evidence. I refer to the occasional case in which there is stenosis or angulation of the cystic duct which interferes sufficiently with drainage from the gall-bladder to cause the symptoms which are relieved by cholecystectomy. Seelig has directed attention to this in a discussion on bile duct anomalies. The stasis thus produced becomes a real factor in the development of advancing disease of the gall-bladder with the complicated infections so frequently associated with it, viz., pancreatitis and hepatitis.

In an exhaustive review by Peterman of the literature on the experimental work of the gall-bladder, it has been shown conclusively that stasis plays an important role in the etiology of cholecystitis. He found from this review that simple injection of virulent organisms, even in large amounts, into the lumen of a normal gall-bladder does not usually produce cholecystitis. Injection of virulent organism into the lumen of a gall-bladder in sufficient amounts after ligation of the cystic duct and vessels regularly produces cholecystitis. Intravenous injection of organisms, if in sufficient amount, is always followed by the appearance of these organisms in the bile. The organisms are probably carried to the liver through the blood stream, excreted in the bile, and carried through this medium into the gall-bladder; however, organisms are also carried at the same time among other places into the wall of the gall-bladder by the blood stream and lymphatics. Ehret and Stolz (whose work Peterman quotes) have observed that the organisms injected into the gall-bladder for the first few days increase in number and then decrease until the gall-bladder becomes sterile. This is explained on the assumption that increased concentration of bile destroys the organisms (Drennan). This may account for the large number of sterile cultures obtained from diseased gall-bladders at the operating table. Cholesterol is distinctly inhibitive to bacterial growth.

In cholecystitis streptococci are the organisms usually found. They are infrequently recovered from the bile but can nearly always

be found after maceration of the gall-bladder wall. Rosenow in experimental work on the eitology of cholecystitis and gall-stone formation has not only shown that the streptococcus is the most constant organism in its production but that it has definite powers of elective localization. The special affinity shown by different organisms for various tissues of the body has been seen over and over again clinically and this he has shown conclusively in his experimental work. He also maintains that infection of the gall-bladder is usually a result of blood stream infection. Mann has produced a specific cholecystitis by the intravenous injection of Dakin's solution; this Rosenow maintains supports elective localization from a chemical point of view. That it also occurs through the lymphatics less frequently is an accepted fact. In the course of gall-bladder disease there may be a cessation to the usual typical symptoms when the patient may be subjected to more remote disturbances such as neuritis, joint manifestations, and other constitutional symptoms, the gall-bladder thus acting as a focus of infection. In contrast to this, cholecystitis is undoubtedly often the result of focal infection elsewhere. Such foci should receive treatment in the routine management of gall-bladder infection.

BIBLIOGRAPHY.

1. W. J. Mayo, "The Surgical Significance of Hepatic Incompetency." Surg. Gynec. & Obst. Vol. XXXIII, No. 5, pp. 463-468.
2. George W. Crile, "The Technique of Gall-bladder Surgery in the Presence of Jaundice." Surg., Gynec. & Obst. Vol. XXXIII, No. 6, pp. 469-471.
3. Waltman Walters, "Pre-operative Preparation of Patients with Obstructive Jaundice." Surg., Gynec. & Obst. Vol. XXXIII, No. 6, pp. 651-656.
4. W. Walters and D. Parham, "Renal and Hepatic Insufficiency in Obstructive Jaundice." Surg., Gynec. & Obst. Vol. XXXV, No. 5, pp. 605-609.
5. Lyon, Bartle and Ellison, "Biliary Tract Disease—Some Lessons Learned from Duodenobiliary Drainage. Future Problems—Citation of Cases." Am. Jour. Med. Sciences, Vol. CLXIII, No. 1, January, 1922. No. 568. pp. 60-75.
6. C. H. Mayo, "Jaundice and Its Surgical Significance." Collected Papers Mayo Clinic. Vol. XI. pp. 116-123.
7. E. S. Judd, "The Recurrence of Symptoms Following Operation on the Biliary Tract." Annals Surgery, 1918, LXVII, pp. 473-488. Collected Papers Mayo Clinic, X, pp. 115-132.
8. Balfour and Ross, "Post-operative Biliary Fistulas." Archives Surgery, 1921, III, pp. 582-594. Collected Papers Mayo Clinic, XVIII, pp. 169-181.
9. Seelig, "Bile Duct Anomaly as a Factor in Pathogenesis of Cholecystitis." Surg., Gynec. & Obst. Vol. XXXVI, No. 3, p. 331.
10. N. G. Peterman, "Cholecystitis and Its Complications." Surg., Gynec. & Obst. Vol. XXXVI, No. 4, pp. 522-541.
11. Ehret, H., and Stolz, A., a. d., Greng. geb. d., Med. u. chir, 1901, VIII, p. 123.
12. Rosenow, E. C., "Focal Infection and Elective Localization of Bacteria in Appendicitis, Ulcer of the Stomach, Cholecystitis and Pancreatitis." Surg., Gynec. and Obst. 1921, XXXIII, pp. 19-26. Collected Papers, Mayo Clinic, XIII, 1921.
13. F. C. Mann, "The Production by Chemical Means of a Specific Cholecystitis." Annals Surgery, LXXIII, pp. 55-58.
14. Drennan, Jennie G., "A Bacteriologic Study of the Fluid Contents of One Hundred Gall-bladders Removed at Operation." Annals Surgery, Vol. LXXVI, Oct., 1922, No. 4, pp. 482-487.

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CANCER OF THE MOUTH.*

By ROBERT LEE PAYNE, M. D., F. A. C. S., Norfolk, Virginia.

In the yearly report of the State Bureau of Vital Statistics, Dr. Plecker reports that there were forty-six deaths from cancer of the buccal cavity. This total of deaths from cancer of the mouth is not so large when compared with the deaths from cancer of other organs, but it goes to show that there are a larger number of individuals affected with incurable cancer of the mouth and that it behooves the surgeon to study these conditions and to do what he can to relieve the suffering individual. The mind of the surgical world at large is beset with the deepest pessimism when cases of cancer of the mouth and throat present themselves for treatment and, while the subject is a desperate one, it is not entirely hopeless. Various cancer hospitals throughout the world report practically no cure of cancer of the larynx and but few of the base of the tongue, but the state of affairs presented in cancer of the mouth lends a far more hopeful attitude, for the result in the treatment of this type of malignancy has been very gratifying and very encouraging during the last five years. The good results attained have been due to the recognition of the possibilities of radium in these cases, together with the realization of just how much can be added to the treatment through the aid of coagulation necrosis.

Cancer of the mouth cavity always originates in the mucous membrane covering the

*Read before the Seaboard Medical Association of Virginia and North Carolina, in Newport News, Va., December 4-6, 1923.

tongue, the floor of the mouth, gum, palate and teeth, and no matter from what point it begins, the close proximity to the maxillary bone always results in the early involvement of this structure. The early involvement of the maxilla in tumors arising from the mucosa of the antrum and the nose makes the separation of these from the tumors originating in the mouth almost impossible at times. In addition, the close association of nasal mucous membrane with the mouth mucosa combines to make malignancy in the upper jaw more frequent than in the lower, and because of this association we also see a greater variety of clinical and morphological types of cancers. Cancer of the buccal mucosa, of the floor of the mouth and tongue are very much more common than sarcoma, the relative frequency being about three to one. Cancer also appears somewhat later in life than sarcoma, usually during the fourth, fifth and sixth decade and true carcinomata are five or six times as frequent in men as in women. It is broadly estimated by some pathologists that the fatality from cancer of the mouth has in the past run from seventy to ninety per cent of the cases.

The etiological factor in cancer of the oral cavity has not been stressed to the laity at large by the medical profession, and entirely too little attention has been paid to the subject of chronic irritation as a causative factor. Some authorities state that false teeth and old ragged loose teeth are the main exciting factors in producing cancer of the oral cavity. It is certain that all chronic ulcers and fissures act as a predisposing factor in the establishment of carcinomata in the mouth. Another condition so frequently seen by all of us and so common in the beginning of a malignant lesion of the mucous membrane of the mouth is that of leucoplakia. Most skin specialists consider leucoplakia as potentially malignant from the beginning, while some pathologists state that carcinoma develops in thirty per cent of leucoplakia cases improperly or not treated at all. The writer believes that all conditions of leucoplakia in the mouth should be considered potentially malignant and treated as a precancerous lesion. Chronic irritation from the use of tobacco, arising from a hot pipe stem, the edge of a broken tooth or the presence of an old active pyorrhea all seem to lead to a condition which is not only favorable to malignancy but often terminates in malignancy. Whenever an ulcer or a new growth appears in the mouth of an individual over thirty-five years of age and remains stationary for a period of three or four weeks, in spite of the usual appropriate treatment, then this case should be considered suspicious of an early malignancy.

The question of metastases in these cases of cancer of the mouth has the most important bearing on the treatment of the condition and it is a recognized fact that malignancy of the tongue and the floor of the mouth metastasizes sooner than any of the other types found in the oral cavity. Usually the metastasis in this type of case is on the same side as that on which the lesion is situated but it occasionally happens that the opposite side is involved in the metastases while the affected one remains comparatively free. Malignancy of the mucosa involving the inferior maxilla always metastasizes to the sub-maxillary lymph-nodes and this occurs early in the affection while malignancy of the buccal mucous membrane, strictly speaking, rarely metastasizes or, if at all, at a late stage in the progress of the tumor growth. The most singular feature relative to cancer of the mouth is the fact that in cancers involving the superior maxilla there is little or no tendency to metastases and this, of course, makes the prognosis and the possibility of treatment very much better in malignant tumors of the mouth arising from the mucosa covering the superior maxilla.

The majority of malignant lesions of the oral cavity are the true epidermoid carcinomata, but we often have to distinguish between the malignant odontomata as well as the frequent occurrence of sarcoma in one form or another arising from the connective tissue in the mucous membrane. In addition to the characteristic giant cell sarcoma or epulis which is comparatively common, we also have sarcoma of the round, the spindle cell, the mixed cell and the melanotic type arising in the mouth and jaw. The round and spindle cell types of sarcoma are highly malignant, grow rapidly and, unless carefully treated, always end in early death. The tendency in these growths towards recurrence is very marked and, if at the time of operative treatment any vestige of the new growth is left behind, there is a rapid return of the growth and an increased tendency to metastasize to other portions of the body. It is true however that sar-

coma of the mouth and jaw have very little tendency to metastasize early in their course of development. The sarcomata are much more common in the superior jaw than inferior. The basal cell type of carcinoma is rarely ever found within the oral cavity.

It is rare that any of these malignant conditions of the oral cavity present themselves to the surgeon early in the disease and the picture of an advanced malignancy of the mouth with the victim weak and emaciated from inability to take food or liquid, coupled with the pain and suffering, presents to us a problem that is difficult of treatment.

The success met with in the treatment of these cases in the last few years has been attained through three methods or agents for handling this type of cancer. These consist of surgical removal with the knife or removal by some method of coagulation necrosis and the institution of proper radium treatment. The question of sequence or the precedence of one of these measures over the other has created a division among the men who are treating and seeing these cancers of the mouth. One school believes that the lesion should always be thoroughly treated with the radium first and then removed with the knife or some form of cautery. The other school believes that cautery or some form of coagulation necrosis should be instituted first and then the site of the growth thoroughly treated with radium. The writer belongs to the latter class and it has been our practice during the past five years to treat these cases by first complete removal of the growth by coagulation necrosis and this to be immediately followed by massive radium treatment.

Before we had radium, we always destroyed these growths with the dull cautery and I cannot recall a single case that got entirely well or remained well very long. Since we have had radium, those cases which formerly we considered hopeless have given us a fairly satisfactory percentage of apparently complete cure which in some instances have remained permanent for a period of three to five years. The suffering of these patients after this form of treatment is very intense and they present a very pathetic picture as they linger along during the first six to nine months after their primary operation, during which time the sloughs are separating and the sequestra loosening from the maxillary processes. Usually all pain stops when the last bit of dead bone comes away and following this the mucous membrane soon rapidly covers over the healthy bone and complete healing rapidly takes place.

In conclusion I would like briefly to report one case of the type under consideration in this paper.

Mr. J. S. A. admitted to St. Vincent's Hospital, December 23, 1920, with the clinical diagnosis of cancer of the mouth. Portion of the oral cavity involved was the floor and to the left side. The lesion extended from one-half inch to the right of the frenum along the left side of the floor of the mouth and as far back as the last molar tooth, passing up onto the lateral aspect of the tongue from the frenum backward as far as the last molar tooth and running over on the alveolar process along the whole distance from the frenum to the last molar. A section of tissue removed proved in the pathological report to be a squamous cell epithelioma.

On December 26th, under a general anesthetic, all of the lower teeth on the left side were pulled, up to the lateral incisor of the right side, and dull heat with cautery irons instituted for forty-five minutes until a complete and deep coagulation necrosis of the entire growth had taken place. Twenty-four hours later the entire area of cauterization was covered with 600 milligram hours of radium, the tubes being placed about one and one-half centimeters apart. There were a large number of tender and enlarged glands under the left lower jaw and these were at the same time radiated through the skin with a dose of 1200 milligram hours. February 17, 1921, the condition of the mouth was very satisfactory except just at the point of the frenum where there appeared to be some little tendency for hyperplasia and many of the glands of the neck persisted, though small and not at all tender. At this time 400 milligram hours of radium was given to a small area just corresponding with the frenum of the tongue and 1,800 milligram hours were applied to the glands of the neck through the skin with proper screen.

On March 30, 1921, practically all of the floor of the mouth was healed except for an area of necrosis near the site of the last molar tooth where a piece of loose sequestrum could be felt. Up to this time, from the date of the original operation the patient had suffered

considerable pain and it had been necessary at times to give him an opiate. At this visit a piece of the lower jaw was removed in the form of a loose sequestrum and following this all of his pain was immediately relieved. He never took another dose of morphia and, in approximately two weeks, healing was about complete over the entire affected area.

On June 11, 1921, the mouth was entirely healed; the patient had gained thirty-five pounds in weight and up to this date his mouth has remained entirely healed and he seems to be in splendid health in every respect. The tongue is somewhat fixed to the left side of the floor of the mouth by scar tissue but he has a plate with teeth which he wears with comfort and the cure appears to be complete.

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THE VALUE OF VITAL RECORDS.

By LLEWELLIN ELIOT, M. D., Washington, D. C.

The importance of Vital Records—records of births, baptisms, marriages and deaths—is paramount, and their value may be assumed greater in the event of destruction by fire, flood or tornado of the church or other building, where such records are preserved. Leaving aside the factor of personal or genealogic vanity in these records, as concerns the individual, certified copies of records may be demanded in cases of litigation over the distribution of estates, divorce suits, cases of illegitimacy, the age of consent, admission to schools, the operation of the Child Labor Law, and admission to Military Institutions of the Government.

Every community, worthy a name, files vital records and, upon the application of a properly authorized party, certified copy will be furnished. In furnishing copy, the custodian must exercise judgment, in order not to promiscuously betray cases of illegitimate births.

Unfortunately the place of preservation of these records is not always fire-proofed, nor sufficiently guarded to prevent abstraction by interested parties; there should be no reason for such laxity on the part of the authorities and, while it would necessitate an outlay of public funds to provide file cases, lockers or safes, the outlay would be justifiable.

A first child may be born and live at the expiration of six and a half months' gestation, after marriage, and there may be created much gossip and scandal and, should the parties have been of the free and easy social class, it will require expert medical testimony, based upon a full and careful study of the physical development of the child to quiet these scandal-monging tongues and to establish the fact that there had been no undue intimacy of the contracting parties previous to marriage. Cases bearing upon this point have been reported; they are matters of record both civil and legal.

Previous to a contracted marriage, State laws protect: where one or both contracting parties should be under the legal age, the written consent of the parents or guardian is required; should objection be raised, that objection must be of a justifiable nature, and sustained otherwise it falls as an objection; forced marriages or those contracted under duress may be nullified by recourse to the court of the jurisdiction; proceeding further, one finds the law requires a license issued by a court's officer; this license furnishes, under oath names, ages, places of birth, and usually, the name of the minister selected to perform the ceremony; it further requires that this license be returned to the court when the ceremony has been performed; a justice of the peace has equal power, as a minister, to marry applicants. I believe the presence of witnesses is usual but not obligatory.

We will suppose every requirement has been complied with, a permanent record is made, and through no ingenuity can this record be denied or falsified. No question can be raised.

Now, let us suppose an eloping couple will reach a county seat after the day's work is done, say about midnight, with law officers and irate parents close on the trail; it is impossible to find the clerk of court, no license can be procured, perhaps the clerk is not willing to get from his bed to help out in the case, time flies, and something must be done and done quickly or the elopers must seek another town. A midnight prowler gives the name of a minister and he is approached, the case explained; on solemn promise to furnish the license at the earliest possible moment, he will waive the license and marry them. His impecuniosity or his over-zealousness has made him violate the law but, trusting to faith in human nature, he does not feel any concern. The time passes and there has been a lapse of memory, a dishonest intention in delay, and it will follow there is no license procured. We have here

an illustration of crooked legalness or legal crookedness; there is no license, no record, possibly no witnesses; our minister begins to fret or worry, still he cannot say a word, for the reason that he is a violator of the law and it is hardly possible to suppose he would do a thing that would incriminate himself. There is no way through which any one, not even the contracting parties can prove marriage unless their "*ipse dixit*" be accepted as a fact, and the case does not come before a Court's jury for settlement.

Let us go further in this case; in time a child is born to these parties, the question now comes up, what standing in law does this child possess, although there may have been parties present at the ceremony; and mother and father have all social rights and privileges of a married couple; they are not married in the eyes of the law; they come under the stigma of "common law husband" and "common law wife," although the name of the father is given the child. Presumptive evidence is all that can be offered in proof of paternity.

A Court of Appeals would not confirm the verdict of a jury of a lower court rendered from motives of sentiment and pity; the common law stigma must stand and litigation be begun anew.

In the early days of the Colonies, three hundred years ago, provisions were made for cases of like nature, and the published "Intention of Marriage" was accepted; if made a matter of public record, frequently, the matter ended there; in some instances a marriage ceremony was performed by a minister or some other one commissioned by the court, notwithstanding the fact that some years may have elapsed between the "Intention" and the ceremony; whatever children born to this union were legitimate.

In a Report of the Record Commission containing Boston Births, Baptisms, Marriages, and Deaths, 1630-1699, one finds:

Colony of Massachusetts, General Court in September, 1639, ordered,* "That there bee records kept of all wills, administrations, inventories, as also of the dayes of every marriage, birth, & death of every person in this jurisdiction." In June, 1642, we read that "Whereas, at the Generall Cort the 4th 7th mo. 1639 there was provision made for the recording of severall particulers, amongst which it is observed that birthes, deathes, & marriages are much neglected in many towns,—

"It is therefore ordered, that hereafter the clarks of the writts in severall townes shall take especially care to record all birthes & deathes of persons in their townes; & for every birth & death they so record they are to have alowed them the summe of 3d, & are to deliver in yearly to the recorder of the Cort belonging to the jurisdiction where they live a transcript hereof, together with so many pence as there are births and deathes recorded, & this under the penalty of 20s for every neglect; & for time past it is ordered, they shall do their utmost indeavor to find out in their severall townes who hath bene borne, & who hath died, since the first founding of their townes, & to record the same as aforesaid.

"Also the magistrates & other persons appointed to marry shall yearly deliver to the recorder of that Cort that is nearest to the place of their habitation the names of such persons as they have married, with the dayes, months, & years of the same; & the said recorders are faithfully & carefully to inrolle such birthes, deathes, & marriages as shall thus bee committed to their trust." In May, 1657, it was found necessary to go further, and, "This Court, taking into theire condideracion the great damage that would unavoydeably acrue to the posteritie of this common wealth by the generall neglect of observing the law injoyning a record of all births, deaths & marriages within this collony, are therefore order that henceforth the clarks of the writts in each towne respectively take due care for effecting the same according to the intent of the aforesaid lawe; and in case any person or persons shall neglect theire duty required by the said lawe more than one month after any birth, death, or marriage the clarke of the writts shall demand the same, with twelve pence a name for his care and paynes; and in case any shall refuse to sattisfy him, he shall retourne the names of such person or persons to the next magistrate or commissioners of the towne where such person dwells, who shall send for the party so refusing, and in case he shall persist therein, shall give order to the counstable to levy the same. And if the clarke of the writts shall neglect his duty thereby injoyned him, he shall pay the following penalty; i. e. for neglect of a yearly retourne to the

*The spelling is as the record.

County Court, five pounds, and for neglect of retourning the name of any person retournable by this lawe, whether borne, married, or dead, more than thirty daies before his retourne to the County Court, five shillings, and that no future neglect may be heerein, the recorder of each County Court is hereby injoyned from time to time certify the County Courts repectively the names of all such clarks as shall neglect to make their yearly retourne according to this lawe, who, uppon notice, given, shall send for such clarke, and deale in the case according as lawe requirith."

These records are still in a fair state of preservation and may be consulted by those who may be interested.

The preservation and recording death records has become at this time an easy task; there are a number of persons required to supervise a burial,—an undertaker, a grave digger, a minister, and the family of the deceased. Records of deaths give places of interment; it is, therefore, not a very easy thing to illegally bury a body, at the same time they are necessary to the records of a State.

The difference between Vital Records and Vital Statistics, is, the one deals with the person, the other deals with morbidity and mortality.

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A PROBLEM IN DIAGNOSIS.

By ALLEN H. MOORE, M. D., New Market, Va.

Despite the rapid advance of medical science, we still have with us diagnostic perplexities. Laboratory auxiliaries are commanded, but even with our perfected technique we are too often utterly in the dark as to the prevailing pathology. Do we not at times label a patient with a certain diagnosis haphazardly without thoroughly investigating via improved laboratory methods? We do. But does the laboratory always hand us a solution to our diagnostic problem? It does not.

It is deplorable that the public expects and demands of us a positive diagnosis upon our initial bedside visit. This certainly tends to create a "snap-shot" diagnosis and unintelligent explanations. I do not believe that we should depend too much on laboratory assistance, yet at times we cannot offer satisfactory or scientific reasons for existing symptoms without it.

On June 13, 1923, a patient, Mr. S. S., consulted me at my office for the first time. He complained of a constant nervousness, a feeling of weakness and a daily remitting headache. He wore an anxious expression and was somewhat melancholy. His family history was negative as was his personal history. He denied venereal infection. Physical examination revealed nothing. He was a well-built, tall, muscular individual. His temperature was normal. I specifically mention this for later comparison.

I informed the patient that my physical examination revealed nothing of a serious nature and that I thought a vacation was much needed. I prescribed complete rest, good, nourishing food, the usual hygienic measures and sodium bromide.

He returned to his work, stating that he was too busy just then to leave. On June 26th he came back to me, exhibiting the same symptoms. He stated that in the forenoon he felt perfectly well but in the afternoon his headache returned, as did his feeling of general weakness and nervousness. His appetite was poor. A second complete physical examination was also negative. His temperature was still normal.

He sought the advice of another physician who failed to locate any definite pathology. A third physician was consulted. At this time, July 29th, he was having a profuse sweat, chills and running a temperature of 103. He was referred back to me with a tentative diagnosis of malarial fever. In as much as he had recently moved from a malarial infested part of the state, this diagnosis seemed not improbable.

I made a third complete physical examination with a negative result. I prescribed quinine and put the patient to bed. The following laboratory work was done:

1. Blood smears for malarial plasmodium.
2. Blood culture for typhoid fever.
3. Widal reaction for typhoid, para-typhoid-A and para-typhoid-B, and colon bacillus.
4. Blood Wassermann.
5. Sputum examination for tubercle bacilli.

Repeated laboratory examinations were all negative. After being in bed for a few days, there was noted a slight improvement. The headache, chills and profuse sweating disappeared. The temperature curve was lower.

The temperature was normal until about noon and then there was a daily rise to 100 or 102. There was a decided improvement in his mental condition, but he stated that he still felt very weak. Up until August 6th, his condition remained about the same.

I asked for consultation. My consultant could find nothing definite. He suggested that the patient was having an atypical typhoid infection or a hidden tubercular infection. We decided to have him entered for hospital observation and treatment. A third consultant was called in to see the case. Repeated physical examinations were negative. Laboratory examinations were continued. X-ray examinations of the chest did not reveal tubercular pathology.

No diagnosis was made. His condition remained about the same. On August 24th, it was decided to remove him to the Johns Hopkins Hospital, Baltimore, Md., for further observation, where he remained until October 26th. His temperature continued remittent in character, varying from 100 to 103½. His headache returned and his feeling of weakness continued, more in the afternoon, when his fever was most pronounced. He had occasional sharp shooting pains in his chest and abdomen, and at one time had a bursitis of the left knee. The only definite thing that could be made out upon physical examination was a left side internal ear deafness and a slight general glandular enlargement. In spite of his fever, he gained fifteen pounds in weight and gained strength proportionately.

The following laboratory examinations were made:

Urine—No abnormalities found.

Spinal Puncture—Normal pressure; normal number of cells.

Wassermann—Negative.

Negative *colloidal mastic and colloidal gold curve.*

Stool Examination—Negative. No ova or parasites found upon numerous examinations.

Blood Cultures—Two every week, aerobically and anaerobically, all of which were negative with the exception of two, from which were obtained an anaerobic hemolytic streptococcus.

Intradermal Tuberculin Test was negative.

X-Ray of Sinuses—Sinuses clear.

X-Ray of Chest—Lungs clear; heart and aorta not enlarged.

Gastro-intestinal Series—Stomach normal. No lesion in stomach or duodenum. Caecum a little dilated. Transverse colon a little prolapsed.

Impression—Normal stomach with a few lower quadrant (right) adhesions.

X-Ray of Teeth—No periapical granulomata.

Gastric Test Meal—No evidence of retention; normal acidity. No blood.

Bacteriological examinations and blood serum tests for specific agglutinins against the following organisms: B. Typhosus; B. Para-typhosus-A; B. Para-typhosus-B.

Nose and Throat Consultation—Inner ear deafness with no involvement of the vestibular branch of the eighth nerve.

Ophthalmoscopic-ophthalmological examination—The eye grounds revealed nothing abnormal.

The temperature has subsided and the patient discharged from the hospital as improved. No definite diagnosis has been made. It was the opinion of those in charge of the above noted investigations that the continued fever had been due to a streptococcus viridans bacteremia. There was no evidence of an endocarditis. The portal of entry was not determined.

In recapitulation, it is interesting to note that a great deal of laboratory work was done and the work properly checked. Repeated complete physical examinations were made with negative results. The portal of entry of the existing infection was not determined. A bacteremia was the most plausible diagnosis

THE CLOSED METHOD OF TREATING EMPYEMA vs. RIB RESECTION: SUMMARY OF CASES.*

By G. CARLYLE COOKE, M. D., Winston-Salem, N. C.
Department of Surgery, Lawrence Clinic.

Since there is great diversity of opinion as to the better method of treating empyema and and as there are many who still adhere to the open treatment, it seems that there should be a more or less standardized procedure employed, and as this can only be brought about by the advantages of one method out-weighing all others, it is the purpose of this paper not to present anything new, but to point out the merits of the closed method over the old very unsatisfactory rib resection.

*Read before the North Carolina State Medical Society at Asheville, April, 1923.

Pathology.

In considering the treatment of any disease process, the pathology, of course, must be understood in order that scientific counter actions of the different processes may be affected in rotation, otherwise the treatment is empirical. The ætiology and symptomatology will not be discussed as the diagnoses can always be made so easily by the use of a needle and the exact location so accurately mapped out by the use of stereoscopic roentgenogram.

The pathological lesion of empyema and pleurisy with effusion, both of which are considered in this discussion, occur in a cavity in which there is normally more or less a vacuum, with a negative pressure of about 8 m.m. Hg. on expiration to 12m.m. Hg. on inspiration.[1] This suction force serves in the place of an anatomical structure to pull the lung equally in all directions, to expansion with the expansion of the chest cavity during inspiration, and not interfere with the change in position of the lung surface with relation to the inner surface of the chest wall during respiration. Regardless of the causative organism, the mechanical derangement is the same. The fluid always gravitates to the lowest point available as the negative pressure does not alter the laws of gravitation. If there are no adhesions between the visceral and parietal layers of the pleura, the fluid will fill up from the bottom, and the negative pressure will not be neutralized until the lung is completely collapsed or has no more tendency to contract of its own normal resiliency. Therefore, it depends on the modus operandi of the causative agent as to whether the serous surfaces will become adherent so as to hold the lung in expansion before sufficient amount of exudate has collected to deplete the vacuum, or to cause a barrier against the fluid in lines of cleavage and cause the formation of thin sheets of fluid at different levels, and the surrounding line of adhesions serve to pull the lung in expansion with the expansion of the chest during inspiration. If the exudate begins as a fibrinous one before fluid collects, one can readily see how these adhesions occur, holding in their meshes pockets of pus of later formation. This is nature's way of tending to limit the disease in two ways: first, by limiting the space for fluid collection, and second, by maintaining respiration and circulation of the affected lung. This same process holds true in massive effusion with complete collapse of the lung. Any fluid collecting in the pleural cavity contains in it fibrin-forming substances, and the resulting fibrin, which will form sooner or later, bridges the visceral and parietal pleura. Fibrin stimulates the growth of fibrous tissue,[2] or fibrous tissue is prone to grow luxuriantly into fibrin: it seems to use fibrin in its own formation so that in this way adhesive bands connecting the two pleural surfaces later contract, tending to pull the lung out. If this is not accomplished, the fibrous tissue will increase at the expense of the fluid and hasten its absorption, at the same time binding the lung surface to the chest wall. If this process be allowed to continue and the infection is not overwhelming, there may be walled off areas of fluid which are so often broken up at rib resection with the finger, frequently denuding areas of the lung surface, opening up new avenues for septic absorption, or causing the infection to spread back into the lung to the extent of lung abscess or secondary bronchiectasis.

The above process may take place in the presence of fluid but, if there is a pneumothorax, the pathology is entirely different. In the first place, the pleura is much less resistant to infection in the presence of pneumothorax than in any other state,[3] especially when it comes on suddenly. In my opinion this accounts for many cases which rapidly succumb to rib resection, together with the opening up of fresh tissue to the infection, both of the pleural surfaces and chest walls. Air does not float fibrin, so that, when a lung is collapsed by air, the fibrin-forming substances poured out on the pleural surfaces stimulate the thickened pleura to increased stiffness. This prevents the expansion of the lung completely with scar tissue which, when the cavity is obliterated, will affect it by filling the cavity with granulations or by pulling the chest wall in on the lung, thereby marking the victim with asymmetry of the chest for life, which is the general rule following rib resection. It is needless for me to say that the scar from thoracotomy may be as unsightly as any other operative label.

Another condition which is frequently overlooked when considering the pathology of empyema, especially where there is a large quantity of fluid, is that there is more or less displacement of the mediastinal structures: in massive effusions, the opposite lung may be encroached upon by the pressure and, as the

heart is held between the lungs, it also suffers from pressure. The great vessels, especially the veins, may have their lumina compressed, hindering the return flow of blood to the heart. In this way we may account for a great amount of cyanosis and dyspnœa seen so often, (for the respiratory stress cannot be accounted for by the lessened lung capacity in a great many cases but is due to toxæmia of the inflammation and the above mentioned conditions),[4] and the alteration of the mediastinal circulation and the effects of the change in position of the mediastinal structures on the cardiac and pulmonary nerve plexuses. When the condition comes on slowly, these structures may adapt themselves to the new position so that their functions may not become markedly altered, but any sudden change in these relations may bring about conditions of great importance which will be referred to under treatment.

As it is an admitted fact that thoracic suction plays an important role in maintaining a return flow of the venus blood to the heart, one can readily see how any condition lessening this function would materially alter the general circulation. Another point of much importance is the consideration of the proper method of treatment.

Treatment.

The most efficient method of treating empyema is the one which will most effectively rid the sufferer of the products of inflammation; in other words drain the abscess, and combat the causative agent, and at the same time maintain as nearly normal condition of the body as a whole as possible. In the first consideration, which I think can be well applied here, the treatment should not be left to the mechanical procedures alone, and I mention the importance of food, comfort and rest so that their importance may not be lost sight of. When any active boiler is leaking steam the only resort is to increase the fires until the leak is stopped. Bodily resistance is entirely dependent upon the nutrition of the individual, which is gained only by plenty of good food, warm body and rest. Preparation must be made to prevent all muscular exertion and mental anxiety as far as possible.

In discussing the operative methods, the one of preference will be described and the points of merit will be noted in turn. The patient is placed on the table in a position which is most comfortable to him, not upon the unaffected side any more than is necessary to gain access to the most dependent point of the fluid collection and, as only a small opening is to be made in the skin under a local anæsthetic, this can usually be done with the patient on the back. A sharp trochar that will admit a soft rubber catheter of 18 or 20 f., which has been perforated on the opposite side from the regular eyelet, is inserted through the chest wall and, as soon as no resistance is felt, the obturator is withdrawn sufficiently to allow the catheter to be inserted through the opening at the Y without allowing the escape of any pus or the ingress of any air into the chest. The trochar which has been especially designed for this method is best (Fig. 1) but, if one is not available, an ordinary gall-bladder trochar, or straight one, will suffice, as the procedure can usually be accomplished so quickly that any leakage will be negligible, provided the catheter fits the trochar. The other end of the catheter is clamped and, when the entering end is in the pleural cavity not over 3 c.m.

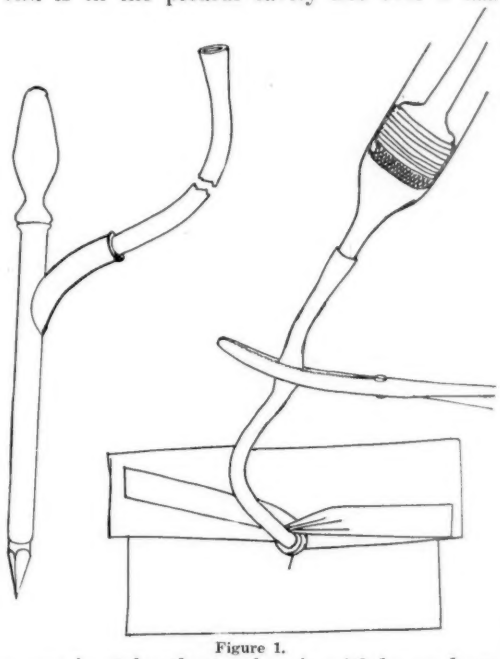

Figure 1.

approximately, the trochar is withdrawn leaving the catheter in place. Before any fluid is allowed to escape, the catheter is well anchored to the chest wall and, if the skin incision has not been made too large, this can be done with adhesive. The only dressing necessary or even permissible for an air-tight joint is a small

piece of gauze wrapped around the catheter and held by tightly applied adhesive strips as illustrated in Figure 1.

Now, in order to determine accurately whether or not the negative pressure has been deplenished or whether there is positive pressure in the chest, I have improvised a water manometer about 20 in. (or 50 cm.) long, graduated in m.m. Hg. and a connection so that the fluid escaping, if any, will indicate the pressure on the manometer by displacing the air in the receptacle attached, as shown in Figure 2. If there is marked positive pressure, the catheter is clamped and no more pus allowed to escape until it can be attached to a permanent drainage receptacle (Figure 3.), with a stop cock interposed so that the flow can be regulated at will. As soon as this is

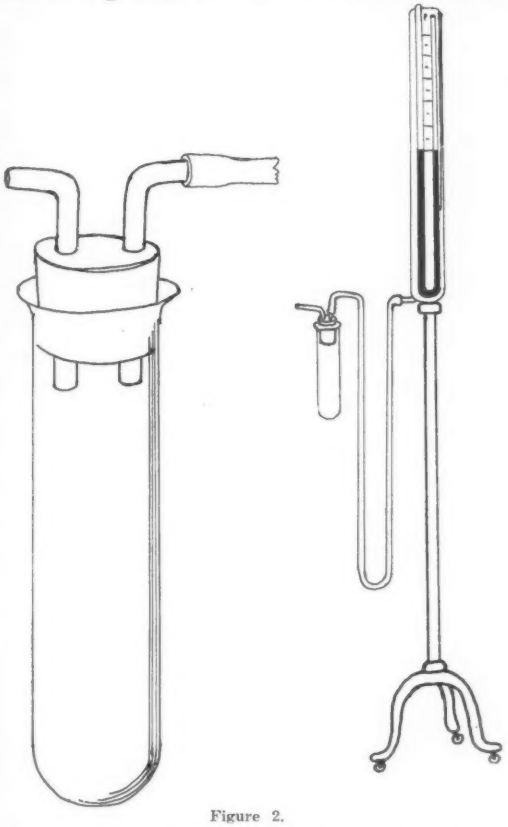

Figure 2.

done, the patient is returned to bed and the massive effusion with distention of the chest wall, displaced mediastinal organs and other conditions mentioned under pathology are slowly abated. Varying with the amount of fluid present, the time utilized in completely evacuating the chest ranges from a few minutes to thirty-six hours. In this way the risk of shock can be entirely eliminated, the time that the patient has been kept from his room is so short that any mental anguish is *nil*, and there is no need for a general or extensive local anæsthetic, either of which has its disadvantages in doing a rib resection.

Figure 3 shows the type of vacuum which is easily obtained and the one which is used at the Lawrence Hospital. It is merely a 4 liter bottle fitted with a rubber stopper which has been pierced for 2 L-bent glass tubes. One tube is connected to the stop cock in the catheter and the other to a suction pump with a back flow check valve. As the fluid is slowly withdrawn by creating just enough vacuum in the bottle to maintain a constant desired flow, time is allowed for the complete re-adjustment of the thoracic organs and for restoration of the breathing capacity of the collapsed lung which is held in expansion equal to the evacuation of the fluid. This does not cause shock as it allows the lung to take up its increased circulation gradually. Frequently large clumps of fibrin will clog the catheter, but this has always been satisfactorily overcome by attaching the catheter to a large glass piston syringe (Fig. 1) and forcing salt solution through the catheter till the clot is dislodged. If it is then impossible to remove the

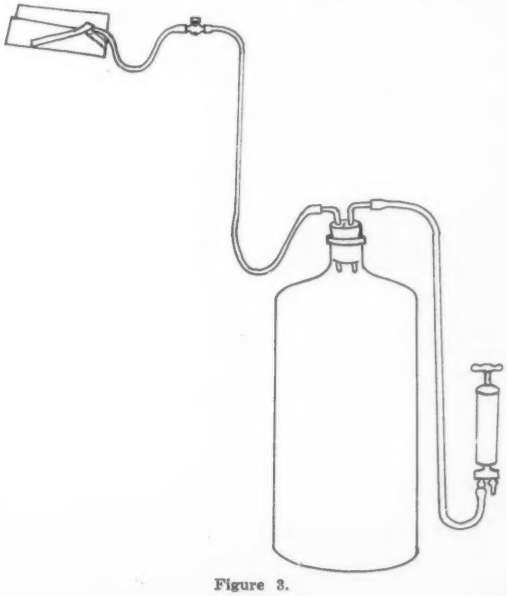

Figure 3.

fluid, one or two ounces of chlorazene solution, 1%.is instilled and allowed to remain for an hour. The catheter should always be clamped before it is detached from stop cock or syringe for, if an air bubble enters the cavity, it will rise above the fluid and cannot be withdrawn until the fluid is completely evacuated.

If the fluid flows freely and no fibrin blocking occurs, the vacuum can be left in place so that every drop of fluid will be withdrawn as fast as it accumulates and the cavity only irrigated daily with a 1% chlorazene solution. When there is great amount of fibrin and clots, the vacuum may be left off for a few days and the cavity irrigated every two hours with about two ounces of the chlorazene solution and each time an ounce is left in to effect solution of the clots. Each day after the cavity has once been emptied, the fluid will decrease and finally the pleural surfaces will become adherent, holding the lung in an expanded condition. Then the cavity may be irrigated and aspirated only once daily till the exudate becomes clear, when the catheter can be withdrawn and the wound dressed tightly, as the patient's resistance will by this time have increased so he will take care of any further accumulation and recover entirely. However, it is a good rule to watch the patient three days longer and note any temperature rise in case further accumulation occurs. If it is necessary to re-establish drainage, the catheter can be re-inserted through the old track without the use of a trochar and the treatment repeated till well.

There are certain essential factors that must be strictly observed for the treatment to be a complete success and some of these, I will admit, are difficult at times, but if one will keep up patient and persistent effort, the results

SUMMARY OF TEN CASES TREATED BY RIB RESECTION AT THE CITY MEMORIAL HOSPITAL. THESE CASES WERE PICKED AT RANDOM.

Case No.	No. of days in hospital	No. of dressings	Complications	Condition on discharge
S—1353	10	10	0	Discharged draining.
S—1189	210	230	0	Discharged draining.
S—1628	20	20	0	Discharged draining.
S—2343	42	43	0	Discharged draining
S—1951	14	18	0	Discharged draining.
S—1990	11	11	Bronchial fistula	Died.
S—60	14	14	0	Discharged draining.
S—336	24	30	0	Discharged draining.
S—1214	17	20	0	Discharged draining.
S—1276	5	5	0	Discharged draining.
Average.	36.7	40.1	1	1 death.

All the patients in this group left the hospital draining, and most of them had no record showing that their tube drain had been removed so that the final result cannot be given in those discharged.

SUMMARY OF TEN CASES TREATED BY THE "CLOSED METHOD" AT THE LAWRENCE HOSPITAL. CASES TAKEN AS THEY CAME ON THE RECORD FILE.

Case No.	No. of days in hospital	No. of dressings	Complications	Condition on discharge
1190	29	4	0	Cured.
1089	30	6	Inter-lobular abscess.	Cured by open drainage.
1098	30	5	0	Cured.
1068	27	5	0	Cured.
633	30	4	0	Cured.
214	13	3	0	Cured.
1691	34	6	0	Cured.
326	18	3	0	Cured.
1617	34	6	0	Cured.
.....	12	3	0	Cured.
Average.	25.4	4.5	1	No deaths, all cured on discharge.

will be well worth it. *First*, the catheter must not be introduced too far into the pleural cavity, as it may double up against the walls and kink, thereby obstructing its lumen, or the end may project upward above the fluid level and not drain the most dependent portions, whereas if the eyelet simply remains clear of the chest wall, drainage will be complete. It is well to have the catheter marked in centimeters so one can tell just how far in the chest it is. *Second*, all air must be strictly excluded from the chest by carefully clamping the catheter before changing any connections. *Third*, there should be persistent irrigation with chlorazene solution as frequently as is necessary to dissolve and wash out any fibrin that may be present which may prevent complete drainage. *Fourth*, the catheter should be carefully watched and kept secure, and all precautions used to prevent the patient from pulling it out.

Complications.

Probably the most alarming accident which sometimes occurs is a sudden minute rupture of the lung surface into a bronchus and the development of a pneumothorax by allowing air to escape into the cavity from the lung, the latter collapsing just as if air had been admitted through the chest opening. I have seen this occur in three patients, but it caused no untoward results. When it occurs, suction and irrigation should be discontinued, except at most once daily, and the opening will heal over in a short while and the lung can be re-expanded. Care should be taken not to force fluid into the chest at this time as it may gain entrance to the lung and cause the patient distressing expectoration. Aspiration should not be discontinued more than forty-eight hours even in this condition, because sometimes a tag of fibrin will fall over the opening in the lung and act as a valve so that, on inspiration, air will be sucked into the cavity. As this cannot be expelled, the patient will "pump himself up," so to speak, even to the extent of causing death; however, if aspiration is kept up occasionally, this will be avoided.

Conclusions.

1. The treatment by the closed method is applicable to almost all cases of empyema.

2. By universal employment of this method, many cases of the acute streptococcic infection that would succumb to rib resection will be saved, and the convalescence is much shortened in all cases, without the scarring that usually follows rib resection.

3. There is great saving in time and material by the few dressings that are required, besides avoiding the great discomfort to the patient that accompanies drainage by the open method.

4. There is most always a rapid return of appetite and vigor with no evidence of septic absorption which often follows several days after the opening up of a large suppurating cavity by rib resection because, once the pus is evacuated, the pleural cavity is obliterated by a functioning lung.

References.

1. Personal Observations in Performing Fifty Operations of Artificial Pneumothorax.
2. James B. Bullitt. Lectures on Pathology, U. of N. C.
3. A. E. Mozingo. The Surgical Treatment of Empyema. J. A. M. A. 1918. LXXI, 2062.
4. Dr. Chas. Mitchell. Personal communication.

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THE USE AND ABUSE OF TOBACCO.

By JAMES C. McGUIRE, A. M., M. D., Washington, D. C.

In praise of tobacco Charles Kingsley wrote in "Westward, Ho!" "When all things were made, none was made better than this, to be a lone man's companion, a bachelor's friend, a hungry man's food, a wakeful man's sleep, a chilly man's fire."

Now that John Barleycorn is supposed to have departed this life—though in some places, the announcement of his death seems premature—those who have been so zealous in prohibiting the things they personally abhor are turning their attention to prohibition of tobacco. A number of states have already passed laws prohibiting or restricting the sale of cigarettes, but in several there is already appearing a revulsion of feeling. The chief objection seems to be against cigarette smoking, bad-smelling pipes and cheap cigars are more or less permissible but "no cigarette fiends need apply."

For over three hundred years the pleasure derived from the use of tobacco has been eulogized in prose and verse. Indigenous to this country and used by the Indians from time immemorial, at first by inhaling the fumes through a pipe, other forms of its use were soon inaugurated by Europeans, to obtain its pleasurable, soothing effects. It is of interest

to note Humboldt, the great scientist, declared "The ancient Indian name tobacco referred to the pipe alone and not to the weed." At one time it was used as a basis of money, even clergymen gladly accepting it in payment for their services. First, I shall speak of how the great men of the world enjoyed the soothing effects of tobacco, praised and advised its use, then refer to those anti-tobacco zealots who have made ridiculous statements about it and the harm it may cause, endeavoring to prove most of their statements untrue. Most of the world's greatest authors, scientists, dramatists, musicians, poets, physicians, and even clergymen, have written of the great pleasure they have derived from the use of tobacco. The French dramatist and poet, Moliere, declared "Whatever Aristotle and all other philosophers may say, there is nothing like tobacco. The man who lives without it is not fit to live." Mark Twain confessedly smoked on an average of ten cigars a day and often praised their use. General Grant was still more addicted to its use, seldom being seen without a cigar in his mouth. It has been said that his excessive use of tobacco caused cancer of the throat, but, even if he had cancer, it could not have been caused by smoking, for no reputable physician would now declare that the fumes of tobacco could by any possibility cause a malignant growth.

The scientist Huxley did not start to smoke till he was over forty years of age, but later was said to have tried strenuously to make up for lost time. Darwin used snuff. Stevenson wrote: "Tobacco is a thing to be remembered, it is so dry and aromatic, so full and so fine." Thackeray agreed with the essayist Carlyle that "The pipe draws wisdom from the lips of philosophers and shuts the mouths of the foolish."

Would that some of those opposed to the use of tobacco would take this to heart. According to an old Spanish proverb, "A paper cigarette, a glass of fresh water and a kiss of a pretty girl will sustain a man a day without eating." Spencer in his "Faerie Queen," describes tobacco as "most divine." The novelists, Thackeray, Stevenson, Collins, Dickens, and many others were all great pipe smokers. Many of Dickens' characters used tobacco and praised its use. Surely you remember Tony Weller, the father of Samuel, who continually advised his son to "Bevare of the vidows" and who was never so contented as when he had a pipe between his lips. The poet, Thomas Hood, said

> "Some sigh for this or that,
> My wishes don't go far,
> The world may wag at will
> So I have my cigar."

According to the great novelist, Bulwer Lytton, "He who does not smoke has either known no great grief or refuses himself the softest consolation next to that which comes from heaven." Again he says, "Women in this scale, the weed in that, Jupiter hang out thy balance, and weigh them both, and if thou give the preference to women, all I can say is the next time Juno ruffles thee, oh Jupiter try the weed."

For the particular benefit of spiritualists, I will quote from a book recently written in all seriousness by a thorough believer in spiritualism, the great English scientist, Sir Oliver Lodge, that he had a communication through a medium with a departed soul now in heaven who declared "I was greatly encouraged at first to learn that smoking is permitted above, as well as below, but I was depressed to learn that the heavenly Habanas are apparently of poor quality, not made of solid matter but out of essences, ether and gases."

The great statesman and soldier, Bismarck, once declared the greatest pleasure he had ever derived from a cigar, was the one he did not smoke. "Reserving it, as his last cigar, looking forward to the pleasure he would later derive from smoking it, on a certain battle field he noticed a man shot through both arms and suffering intense pain. Bismarck wishing to help him, at first found only gold coins in his pocket—this could do the poor fellow no good; then remembering his precious possession, his last cigar, he lighted it and placed it between the soldier's lips; the smile of pleasure as the man took his first whiff could never be forgotten."

Lord Northcliffe, the English newspaper owner and editor, after lauding the "Yankees" fighting so bravely in the first trenches in France, advised their countrymen to send them cigarettes, chewing gum, magazines and newspapers; always you notice in such advice, cigarettes come first. According to the Department of Agriculture, thirty-nine billion cigarettes were produced in the United States

in the last year. There being such a demand for cigarettes, surely they must have much intrinsic merit or they would have been driven out of the market years ago by the fanatics who spend millions in trying to suppress their use.

In the last great European war, we all know how our soldiers desired them above all things, for the comfort they derived from them in the first line trenches or on forced marches, in the monotony of camp life, during convalescence from wounds and illness. A well known Army surgeon reported "I believe a wounded man waiting for his turn to appear on the table for a surgical operation is better fitted for the ordeal after smoking a few cigarettes than if he had been given a strong drug. We surgeons not only allow it but encourage their smoking. I have seen a whole ward, thirty to forty beds occupied by severely wounded men, complaining, restless, even crying with pain quieted with cigarettes and candy." A lady returned from abroad where she had helped the girls in distributing tobacco to wounded and convalescing soldiers as they arrived by train in London, Paris and other cities says "If you could see how thankfully they receive them one would think even the most violent opponents to tobacco could hardly have the heart to deprive them of this solace."

Recently, an officer in the Aviation Corps, lost in a desolate part of Mexico, was found in the last stages of exhaustion and starvation; his rescuer declared the first thing this man said was "Please roll me a cigarette."

During the War, General Denikin of the Russian Army received through the Red Cross a consignment of American tobacco for himself and his troops. He said "With a regular ration of American tobacco the Southern Russian forces could drive the Bolshevists out of Moscow in short order." He places tobacco in the first position as a stimulant to morale among soldiers. Occasionally, letters appear in newspapers blaming the Government and individuals for furnishing cigarettes to the soldiers. A clergyman recently declared "It is a very wicked thing to do, for it is well known that smoking has a deleterious effect upon the nerves and makes the men unfit for their strenuous life." Later I will prove this to be untrue. Another wrote "Cigarettes are the invention of the devil and will lead to all forms of sin," then adding the absurd statement "I believe cigarettes cause pneumonia so prevalent among our troops." He might as well have said their use caused smallpox. But evidently there is a difference of opinion among some clergymen at home and those who were in the fighting line. A soldier tells of "a preacher man" who one Sunday walked six miles with a baseball bat in one hand and a bundle of cigarettes in the other, to give the boys some pleasure. "He asked if he could help us with our stalled mules. We replied 'Sure you can, by passing on so we can talk to these damn stubborn beasts in the only language they understand.' After the clergyman had talked to us and distributed the cigarettes one of the boys said 'I never before believed there was such a lot in this Christianity business. Now I am converted all right.'" The clergyman smilingly replied "You are all right, boy, you are on the right track." Surely this "preacher man" understood human nature wherever he found it. Finally, General Leonard Wood declared "The idea of sending tobacco to the American soldiers in France is a capital one. Nothing gives a soldier in the field more pleasure and contentment than a cool refreshing smoke after a hard day's fighting or waiting call to the firing line. Life in the trenches is very hard and I know the American soldier will appreciate and enjoy remembrances in the form of tobacco, cigars, cigarettes and pipes." In this opinion General McCain and most of the officers in the army and navy concur.

During a period of years I have mentally recorded a number of questions asked me as a physician as to the harmfulness of the use of tobacco, particularly in the form of cigarettes. From the very beginning, those who use tobacco were vilified, condemned to everlasting perdition and doomed to physical degradation, yet those who so expressed themselves were the least qualified to judge, for they persistently ignored the results obtained by investigations of competent physicians and others who scientifically studied the question. With the greatest assurance they iterate and reiterate statements that time and again have been proven false, such as "Tobacco contains a deadly poison that all scientists declare to be a strong stimulating narcotic." This statement has even been made by some physicians who should know better, for nicotine is neither a narcotic nor a stimulant.

Narcotic is properly defined, as an agent

causing sleep and allaying pain. Tobacco has no such effect; therefore it is not a narcotic, nor is it a stimulant. On the contrary, it is a strong sedative, quieting restlessness and calming bodily disquietude.

There is another statement that "There is two to five per cent nicotine in a good cigar, one-half to one grain in a cigarette." If this were true, one cigarette would contain enough poison to kill a number of men. They further show their ignorance of the nature of nicotine by measuring it in *grains*, whereas in reality it is an almost colorless *liquid*. When cornered, these people resort to the expression "Every man has a right to his opinion," but as to the statement of facts and harmfulness in the use of tobacco, "Every man" assuredly has no such right, for only the findings of those who have made thorough laboratory investigations, physicians who have studied effects by close clinical observation are worth serious consideration. It is here of interest to learn that an instructor at John Hopkins Medical School stated, "I have yet to see in a clinic or a pathological laboratory any evidence to condemn tobacco in any form."

In fact, the opponents resorted to cruel statements, that could only originate in the minds of visionary fanatics, endeavoring to impress immature minds incapable of judging for themselves. Some of their statements, so overdrawn, and at times so absurd, when brought to the attention of the general public, should be of great benefit to the manufacturers of tobacco by showing how far these anti-cigarette fiends will go to try to prove their untrue statements. "Fiends" is here used advisedly, for what could be more cruel than some of these published statements? For instance, at a certain meeting of "The Epworth League" at Denver, Colorado, an individual was allowed to deliver himself of the following: "Tobacco farmers are scoundrels, tobacco merchants are villains, all tobacco dealers and users are rogues and scamps." Mr. Elbert Hubbard, a year or two before his tragic death by drowning, published an article in one of our best known magazines entitled, "The Cigarette Habit," illustrated with a picture of a youth with cigarette in hand, surrounded with grinning skeletons and emaciated horrors, better suited as a frontispiece of "Dante's Inferno." Under this picture appear the words: "Hands that already play the devil's tattoo and roll cigarettes; these are the hands that forge your name and close over other peoples' money." Remember, these statements were made solely and alone because the youth smoked cigarettes. Here are a few more of Elbert Hubbard's statements as to the *moral* effect resulting from the use of tobacco, "A loss of moral and mental control." "The first indication of degradation is in the youth's secretiveness." "For the young man who has become so calloused that he smokes cigarettes in the presence of his mother, sister, or sweetheart, there is little hope." "The poison has already tainted his moral nature, and for him the work of dissolution, disintegration and degradation has begun. He is defective—a physical, mental and moral defective. Cigarettes stupefy the conscience, deaden the brain, place the affections in abeyance and bring the beast to the surface." According to a newspaper dated February 16, 1916, "The Revereend Dr. Sunday preached a sermon to fourteen thousand Trenton women advising girls not to marry cigarette smoking, cussing libertines." Why cussing libertines?

It would be unnecessary to regard such statements seriously except that so many "old women" of both sexes will believe anything they see in print and that agrees with their preconceived ideas. The following are a few of the objections that have been made as to the use of tobacco. In replying to these and answering questions, it has been suggested that I had no more right to an expression than others, as this is partially true. I have for the most part quoted those who were the best qualified to judge by observation, study and laboratory investigation. As to the moral effect, of course it is impossible to reply, for to those who regard cigarette smoking as an abominable sin as Elbert Hubbard has said, "a habit that leads to degradation, disintegration and dissolution" it is a matter of opinion and unanswerable, therefore I will have to confine my remarks as to use of tobacco to its physical effect alone.

Some years ago a pamphlet was given to the students in a grammar school in Baltimore, Md., stating "tobacco is a powerful narcotic containing a substance called nicotine, a single drop of which placed on a dog's tongue will soon kill him—an ordinary cigar contains enough nicotine to kill two men if taken pure." One of the best known chemists and teachers at Johns Hopkins University, Baltimore, Md., who stated he never smoked or tasted liquor in his life (notice this particularly, for surely

he is an unprejudiced judge) declared in the *Maryland Medical Journal*, March, 1906, "Here are three little sentences containing four big lies. Tobacco is not a narcotic. Nicotine will not kill a dog in the manner described and an ordinary cigar used in the ordinary way, containing its usual amount of nicotine, will not kill two flies." After this statement it is needless to say the pamphlet "Containing the four lies" was quickly suppressed.

We often hear the statement that cigarettes are adulterated with poisonous drugs yet Dr. H. W. Wiley, formerly Chief Chemist of the U. S. Agricultural Department, the man above all others opposed to adulteration in any form, has declared in print and to me personally "I have had tested ten samples of cigarettes purchased in the open market at different places and found them entirely free from arsenic, opium or any other drug." Professor Kennicott, of Chicago, and Dr. J. F. Babcock, professor of chemistry, Boston University, and other investigators have found the same results in their examinations of cigarettes. Then, too, it would surely be an absurd financial venture for a manufacturer to add sufficient drugs to the tobacco to have an appreciable effect upon the smoker for the cost of the adulteration would be many times that of the tobacco itself. "Is it not true that cigarette smokers always prefer certain brands; does this not prove there is something in the cigarettes besides tobacco?" There are many reasons for this preference. Manufacturers have certain blends known only to themselves, that is tobacco of certain age, grown in different parts of the world that have different flavors. These are mixed in different proportions, then at times such a substance as licorice (an entirely hamless ingredient) may be added to give the taste the smoker prefers. Here is an example, according to a magazine article. A certain manufacturer wished to give a rich "pound cake flavor" to his cigarettes; failing to obtain it himself, he consulted an expert chemist. Eventually he received a reply "I examined cigarettes that came fairly close to the ideal flavor wanted and found that licorice had been used after it had been made hot." This was the secret of the particular flavor desired.

Granting nicotine to be a violent poison, "Is it not dangerous to allow even the smallest quantity to enter the system?" This question is of course obsurd for there are many dangerous drugs prescribed by physicians for our health's sake. Even much of our daily food and drink contain deadly poisons. A very active poison can be extracted from potatoes and many other foods. Caffeine, the active principle of coffee, and theine, derived from tea when taken in large amounts, cause insomnia, palpitation, stomach troubles, and emaciation, yet there is no active crusade against the use of tea and coffee. Even the air we exhale contains an active poison, carbonic acid gas, but fortunately, when we take small quantities of drugs, use moderation in our eating, drinking and smoking, we do not absorb sufficient poison to harm us.

One of the most vicious and harmful statements about the use of tobacco is to compare it with the morphine habit. Elbert Hubbard declared: "The choice between cigarettes and daily doses of cocaine, morphine or bromide (sic) is very light."

Now let us suppose a youth easily stops the use of tobacco; he may have to consult a physician who gives him morphine to relieve severe pain, or use cocaine locally for some surgical operation. Finally, the boy may take either of these drugs himself. Believing implicitly in Hubbard's statement he is not afraid, for he has been told he could give up the drug as easily as he did cigarette smoking, but can he? Assuredly he can not. He could no more voluntarily abandon the use of morphine, after having become accustomed to it than he could stop breathing. Then the youth awakens declaring: "Those anti-cigarette fiends taught me I could give up one habit as easily as I could the other, now see my condition in believing such false statements." So Mr. Hubbard's statements are not only untrue but vicious, causing such a youth irreparable harm.

Here are several amusing statements, though made in all seriousness. A certain good man declared "I believe the advanced age of men mentioned in the Bible would not be so uncommon today but for the hot nicotine fumes with which so many now poison themselves." He means "hot air" of course, for heat destroys most of the nicotine tobacco contains.

It has also been said "Tobacco smoking causes great heat of the body, this gives rise to violent fever and causes the blood to rush to the roots of the hair and destroys them. This

is the reason we see so many bald heads among the men but notice women are not bald because they do not smoke." Don't they, indeed? Many ladies do smoke, and but for convention's sake there is no reason why they should not. Truth to say, there is absolutely no proof that smoking in moderation will harm one sex more than the other. The mere statement to the contrary is not proof. Suffragists particularly must agree if men may smoke without actual disgrace, surely women may do so for what is permissible for the gander should be allowable for the goose. Even elderly women smoke. According to an associated press report, "At a poor farm in Minnesota, provision is made for a smoking room for the old women who all their lives have been accustomed to their pipe." Let us hope these old ladies have continued to enjoy their pipe in peace without the interference of so-called reformers and mollycoddles of both sexes, or pestiverous legislation. According to another newspaper statement in Washington, Indiana, a Mrs. Denny celebrated her hundredth birthday in July, 1917. She states that she has walked without a cane, does not wear glasses, traveled over twelve states, usually behind a team of oxen, and has used tobacco since she was sixteen years of age, declaring "the use of tobacco has kept me alive."

A friend now over eighty years of age, with an erect figure, a complexion any young girl might envy, not the slightest manifestation of nervousness in any form, as active as a man of forty, who made a second marriage after he was seventy years of age, and is supremely happy and contented, has daily smoked strong cigars since early youth.

An acquaintance wishing to prove the enormous amount of nicotine contained in cigarette smoke had me slowly blow it through a handkerchief. A yellow stain was left on the linen; of course this was simply the coloring matter in the tobacco. If it had been nicotine, one breath of a cigarette would have caused death. Then, too, nicotine is not yellow, but is an almost colorless liquid. This person also declared clergymen and physicians seldom used the weed. It has been my privilege to be intimately acquainted with many clergymen; and in the privacy of their homes and in the clubs, those who smoke average about as many as men in other walks of life. Of course they do not indulge in this pleasure before their women parishioners or upon the streets. Convention prevents this. Having practiced medicine for thirty years, knowing many hundreds of physicians in different cities, I state three-fourths of all practitioners of medicine use tobacco in some form, many of them smoking cigarettes exclusively. Such a large proportion use tobacco because the vast majority of the medical profession believe that smoking in moderation never causes any ill effects. The *London Lancet*, recognized as the most authoritative medical journal in the world, after thoroughly investigating the results of the use of tobacco, declared: "Cigarette smoking is the least injurious form of tobacco in use."

Professor Bain, in his interesting pamphlet on the use of tobacco, declares science is almost unanimous as stamping the cigarette as "a form of tobacco, in the use of which ill or undesirable effects upon the body or mind, are practically nil."

In my individual experience, about twenty-five years ago I believed I was suffering from a condition popularly known as "Tobacco heart" resulting from smoking cigarettes. I consulted the best known, best informed diagnosticians in the country, Dr. DaCosta of Philadelphia, and the elder Dr. Loomis of New York City, who informed me I had no serious trouble of the heart, that probably the symptoms of which I complained were brought on by the excessive drinking of coffee. Dr. Loomis advised me to continue my smoking, stop the coffee, and report to him in a month. In the meantime, all disagreeable symptoms had disappeared, though I had continued to smoke twelve to fifteen cigarettes a day, and so have continued for the last thirty years, with no return of the "heart trouble" but, if I drink a cup of black coffee, in a short time I have a disagreeable sensation about the heart. In other words, the majority of those who believe they have a condition known as "tobacco heart" are really suffering from the effects of coffee. Dr. Loomis also said: "I consider the cigarette the least harmful use of tobacco. One is poisoned by the use of tobacco, if ever, by the amount of nicotine his system absorbs; he will get more of this by chewing, than from a pipe, next a good cigar, finally from cigarettes, even plus inhaling."

Cigarettes are said to harm the throat and the voice. If this is true, is it conceivable that the greatest opera singers in the world habitually smoke? Caruso is said to have

smoked many cigarettes a day, even between the acts. Would this great tenor, receiving the enormous salary he did, have run the risk of harming his voice by indulging in cigarette smoking, unless he knew by years of experience that they did him no harm? This is not alone applicable to Caruso, for it is well known that the majority of those who are famed for their voices on the operatic stage smoke cigarettes, many women as well as men.

Another tobacco smoker states: "I have been told even by physicians that the use of tobacco leads to organic diseases of the heart and lungs, and causes cancer, and even death may result from its use." I doubt if any regular practitioner of medicine would make such a statement before a medical association as to death being directly caused by smoking. No board of health would accept such a statement. It has been found that even direct applications of nicotine to the heart itself do not affect its pulsation.

The false statement has been made and reiterated that the use of tobacco leads to mental troubles, even to insanity. Professor John Bain, Jr., in his excellent treatise entitled "Cigarettes in Fact and Fancy" declares that "The Medico-Legal Society of New York sent inquiries to the superintendents of insane asylums in this country and abroad, as to the possible relationship between cigarette smoking and insanity. Several hundred replies were received. Every one, without exception, declared that not a case of mental disturbance had ever been traced to the use of tobacco in any form."

Professor C. E. Nammalk, M. D., LL. D., physician to Bellevue and St. Vincent Hospitals, New York City, says: "I am convinced that moderation in the use of tobacco is not attended by any of the dangers which fanatics ascribe to its use."

Dr. Wm. B. Fletcher, in a scholarly paper on the use of tobacco, read at the Mississippi Valley Medicial Association, held in Indianapolis, 1905, declares "In the last twenty-two years I have examined over twelve hundred cases brought to the General Hospital for the Insane, and in my private practice where the cause of the malady was given as 'the cigarette habit.' In not a single case have I reason to believe that tobacco had anything to do with the disease."

Finally, if those who condemn the use of tobacco would only try a smoke, would fill and light their pipes and take their ease, we would hear less complaint from them, for then surely they would appreciate the words: "The pipe draws wisdom from the lips of philosophers and shuts the mouths of the foolish." Ye who condemn tobacco put this in your pipes and smoke it, remembering Carlyle's advice: "Tobacco should be an incentive to silence, not to speak a word more than one has got to say." I light my pipe, gaze upon the glowing logs, and dream, sincerely hoping that anti-tobacco zealots may soon learn the error of their ways and be more charitably disposed towards those they have so strenuously condemned.

1311 *K Street, Northwest.*

PELVIC STONE, WITHOUT SYMPTOMS, WITH COMPLETE RENAL DESTRUCTION.*

By W. T. GAY, M. D., Suffolk, Va.
Junior Surgeon and Urologist to Lakeview Hospital.

We are more or less familiar with the majority of typical cases of pelvic stone, and while we are ever on the alert to find some improvement in the method of diagnosis and treatment of the typical case, we owe it to ourselves and to the patient to spend much time and thought with the atypical—the case which presents only a few or very indefinite symptoms. With this thought in view, I will give below a more or less detailed report of a case falling in this category, with the hope that it will be of some practical benefit when similar cases are encountered.

The subject of the paper is a little misleading, because there were symptoms, but symptoms which pointed away from the real pathology rather than to it. With the history and symptoms that the patient gave, and being in the class of the fair, fat, and forty, it was quite natural to try to make her have a diseased gall-bladder; but such was not the findings, as we will see below.

Case No. 3296. A white, married, female patient, age fifty-three, was admitted to Lakeview Hospital on March 15, 1922, complaining of discomfort in right abdomen, with marked weakness and fever.

Family History.—One sister died at the age of 55, from cancer of the breast. One sister now living has tuberculosis.

Past History.—She had the usual diseases of

*Read before Southside Virginia Medical Society at South Hill, Virginia, December 12, 1922.

childhood, and attacks of rheumatism, bronchitis, some digestive disturbance characterized by gas, belching and bloating. Married thirty-one years—two children living and healthy. Miscarriages fourteen. Menopause three years ago.

Genito-Urinary History.—Had never at any time in life had any urinary disturbances, kidney colic or pain in kidney region.

History of Present Illness.—For the past four years she noticed at frequent intervals a slight discomfort in right abdomen anteriorly. Recently there has been some soreness in right lumbar region, extending across crest of ilium and deep down in right abdomen anteriorly. For the past several months has noticed a marked weakness and fatigue coming on after slight exertion. For the past month has been having fever daily, ranging from 99 to 101. Two days before admission, developed a severe cold, with temperature 102, cough and soreness in chest.

Physical Examination. — Showed a very corpulent woman weighing 220 pounds, which is her average normal weight. Skin very pale, dry and rough. Cheeks flushed. Heart sounds very distant with a soft systolic murmur at apex, not transmitted. Blood pressure—diastolic 85, systolic 150. Definitely diseased tonsils. Lungs showed a few scattered rales over the upper right chest. Slight tenderness in right abdomen just external to G. B. region. Slight tenderness on deep pressure in lower part of right lumbar region, otherwise the examination was negative.

On day of admission she gave a turbid urine, specific gravity 1016, acid reaction, much albumin and pus. R. B. C. 5,012,000, W. B. C. 14,400, Polys 70, lymphs 30, HB. 65.

X-ray Examination.—Showed a stone about one-half inch in diameter opposite the third lumbar vertebra and two inches from mid-line.

Cystoscopic Examination.—Bladder mucosa normal. Urine in the bladder turbid and full of flakes and shreds. Left ureteral orifice normal in size, position, and appearance; catheter passed without obstruction. Urine excreted with normal rhythm and frequency, P. S. P. time six minutes, forty per cent eliminated in two hours. Considerable pus from left side. Right orifice contracted, catheter met obstruction in pelvic portion, which obstruction could not be passed by catheter. No urine coming from this side. One week later cystoscopic and X-ray examinations gave the same results.

Being a poor surgical risk and having considerable pus coming from the left kidney, operation was delayed with the hope of bettering her condition. However, in spite of all palliative treatment, she continued to run a septic temperature, ranging from normal to 102°, with a gradual rise in the leucocyte count. At the end of three weeks pain in the lumbar region became slightly more marked and you could now palpate a mass low down in this region. The leucocyte count went up to 18,800 and the patient showed marked signs of growing worse, so its was decided best to drain this mass under local anesthesia. A thick, creamy pus was liberated from a honeycombed abscess, the origin of which was not determined.

Improvement was immediate and rapid: at the end of three weeks her general condition was markedly improved. T. P. R. normal; P. S. P. elimination seventy per cent; urine practically free of pus, but the sinus leading to abscess cavity continued to discharge much pus.

On cystoscopic examination the ureteral catheter now easily passed the right ureter to the kidney pelvis. Still no urine came from this side. A pyelogram was made, 45 c.c. of fifteen per cent sodium bromide solution being run into the right pelvis without any discomfort to the patient. The X-ray plate showed the left ureter to be in a normal position, while the right passed markedly to the right with a wide curve outward then turning inward terminating about two inches lateral to the level of the third lumbar vertebra. The opaque solution showed a contracted and low pelvis with rounding of the calices and pocketing. The shadow then extended downward and outward where it took on a narrow linear appearance for about two inches when it again ballooned out as a large irregular cavity corresponding with the position of the previously drained abscess.

One week later a right nephrectomy was done. In the lumbar region on a level with the crest of the ilium was found a mass of fatty and connective tissue, oval in shape and one-half size of a normal kidney. The only structure remaining that could possibly be recognized as kidney substance, was an ill-defined poorly developed kidney pelvis which contained one stone 2.5x1.5 cm. Above and entirely separate from the first mass was a second which was about half the size of the first. This, the remains of the suprarenal, was

soft and slightly cystic. Microscopic sections showed an occasional cell resembling lining cells of kidney tubules, otherwise there was an entire absence of tissue resembling kidney. The second mass showed scattered areas of fairly normal adrenal structure. There was no evidence of tuberculosis or malignancy in either section.

The patient made a good post-operative recovery with a rapid and complete healing of the wound. Tonsillectomy was performed three days before discharge. When last seen, four months after discharge, she was entirely free of symptoms, urine negative, and had regained her normal weight.

Conclusions.

The failure of the catheter to pass right ureter on the first examination was due to the pressure of the lumbar abscess with distortion of the ureter.

The development of the abscess was what forced the patient to seek relief. This abscess, which was very slow of development, was secondary to the infected and functionless kidney which no doubt extended over a period of years and had been neglected because attention had not been directed to the urinary tract.

There was a large stone (2.5x1.5 cm.) in pelvis of kidney which had never given rise to any kidney colic. It is possible this may have developed after the kidney ceased to function.

There was an entire absence of any urinary disturbance at any time during the life of the patient. We get the first knowledge of her true condition when we examine the record of urinalysis and find the urine loaded with pus and albumin.

Anyone of us can make the simple urinary tests and, if made as a more routine part of our everyday practice, it would often lead to an early diagnosis or point out the direction in which we must investigate in order to make a diagnosis that will enable us to offer some hope of relief before the damage is beyond repair.

ALL LIT UP.

A little girl, brushing her hair, found that it "cracked," and asked her mother why it did.

"Why, dear, you have electricity in your hair," explained the mother.

"Isn't that funny?" commented the little one. "I have electricity in my hair, and grandmother has gas in her stomach."—*Exchange.*

Analyses, Selections, Etc.

SCIATIC HERNIA.

A Report of a Case of Hernia of Meckel's Diverticulum Through the Greater Sciatic Foramen.

By JOHN W. BRODNAX, M. D., Richmond, Va.
Associate Professor of Anatomy, Medical College of Virginia.

Of all forms of hernia the sciatic type is one of the rarest, or, at least, it would appear so, if the number of recorded cases can be taken as an index to the frequency of their occurrence. A careful search of the literature on this subject reveals the fact that less than thirty cases have been reported up to the present time, and of these only one has been contributed by an American surgeon. It is to Dr. John Edward Summers[1] of the University of Nebraska that credit is due as the first surgeon in this country to report a case of sciatic hernia. In a very excellent paper on this subject, read before the Western Surgical Association, December 9, 1921, Dr. Summers describes a case of sciatic hernia complicated with myxomatous tumor of the scrotum. This case, as far as available literature at my disposal is concerned, constitutes the only one recorded in this country. Possibly other cases have been reported. If so, I have been unable to find any mention of them.

In sciatic hernia the intestine, or whatever structure it might be, for it may contain any viscus or organ sufficiently movable to reach and pass out of the pelvic cavity, escapes through either the greater or lesser sciatic foramen. This part of the pelvic wall presents three weak spots and, anatomically, it is possible for hernia to take place through any of these places. The greater sciatic foramen is filled-in by the pyriformis muscle which has a small slit-like cellular interval, both at its upper and lower borders. Hernia may occur through either of these intervals, or it may pass through the lesser sciatic notch, which represents the third weak spot. After passing out of the pelvic cavity it presses beneath the gluteus maximus muscle and, if small, may remain under cover of that muscle and escape detection, or it may reach such proportions as to form in the gluteal fold a well marked tumor. "In all cases through whichever opening the hernia passes it must always have the sacrotuberous ligament below it." This is an

important point in differentiating sciatic hernia from a perineal hernia. In the latter, the sacrotuberous ligament, which is easily felt, lies above the hernial opening. Garre[2] likens the sacrotuberous ligament in this respect to the inguinal ligament in distinguishing between inguinal and femoral hernia.

Probably chiefly on account of the rarity of sciatic hernia, comparatively little is known of its etiology. One case reported in 1873 by Crossle[3] is of particular interest in as much as it gives a clear history of the cause. This case occurred in a woman who, while in the act of lifting a heavy iron plow into a cart, became suddenly conscious that something had given way in a situation deeply seated, where she later discovered a small tumor about the size of a pigeon's egg, situated on the margin of the gluteal fold on the same side. This tumor gradually increased in size until, when it was examined by Crossle, it had reached the size of a foetal head "at term."

Of the recorded cases two-thirds of them were in females. The greater frequency in

Fig. 2. Sciatic hernia as seen from the exterior of the pelvis.

Fig. 1. Sciatic hernia as seen from the interior of the pelvis.

that sex may be accounted for by the fact that the sciatic foramina are slightly larger and the sacrotuberous ligaments longer and more lax in females than in males. Doubtless, also, the ill effects of pressure and trauma attendant on labor predispose women to this form of hernia. "Sciatic hernia occurs more frequently on the right side than on the left, having been observed on that side ten times out of fourteen cases. M. Koppl has noted nine case of strangulation out of the twenty-six cases published in the literature."

Although Sir Astley Cooper[4] is generally credited with having reported the first case of sciatic hernia in 1800, the literature shows that fifty years earlier, in 1750, a German physician of the name of Papen describes a case which came under his observation, in a letter addressed to the Swiss physiologist, Haller.

The case which I report tonight came under my observation in the dissecting hall of the Medical College of Virginia in 1922, and consequently nothing of the personal history of the individual is known. The subject was a negro convict, nineteen years of age, who came to his death by a gunshot wound of the chest, received while he was attempting to escape from the convict road force in one of the counties of the State.

Not anticipating any abnormal condition in the pelvis, the contained viscera had been much disturbed before the hernia was discovered. I noticed, however, an unusual quantity of small intestine in the pelvic cavity, which at first appeared to be bound down by adhesions, but a more careful examination showed the anchorage to be due to a herniated Meckel's diverticulum through the greater sciatic foramen. The diverticulum, which was about 10 centimeters in length, was attached to the ileum about two feet from the ileo-caecal value. At its point of origin the ileum was slight-narrowed and markedly kinked. The gut passed out through an opening about 15 millimeters in diameter above the pyriformis muscle and in front of the superior gluteal vessels and nerve, and ended in a globular tumor about the size of a hen's egg, which rested upon the dorsal surface of the pyriformis entirely under cover of the gluteus maximus muscle. There was no visible surface enlargement and, in all probability, the individual was never aware that such a condition existed. I show two drawings of this case which give you a better idea of the character of the hernia than a written description. The other drawing is a copy of the illustration of the Crossle case, which was published in the reports of the Dublin Pathological Society in 1873, and which has been frequently used in text books since that time as an illustration of sciatic hernia.

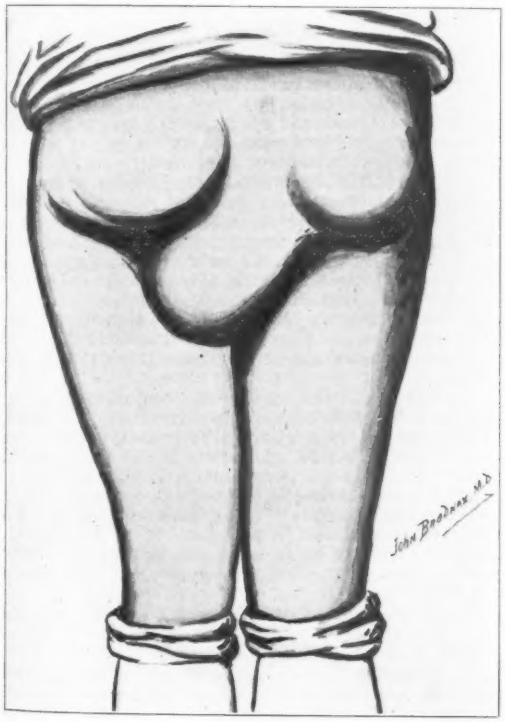

Fig. 3. Drawing of case of sciatic hernia reported by Crossle.

As previously stated, Dr. Summers' case, as far as I have been able to ascertain, is the only case up to this time that has been reported in America, and the one I report tonight stands second, with the unique feature of being the first recorded case of sciatic hernia where Meckel's diverticulum formed the herniated mass.

BIBLIOGRAPHY.

1. Annals of Surgery, Vol. LXXV. 1922.
2. Die Hernia Ischiadica, Beitrage zur klinische Chirugie, Vol. IX.
3. Transactions of the Dublin Pathological Society, 1783.
4. Anatomical and Surgical Treatment of Abdominal Hernias, by Sir Astley Cooper.

(*Selection from Journal of the A. M. A.*, Feb. 9, 1924).

Correspondence.

Effect of Freezing on Toxin-Antitoxin Mixture.

February, 1924.

TO THE EDITOR:

There appeared recently in some of the daily papers of Virginia a news item in regard to the occurrence of twenty cases of illness in Concord, Massachusetts, following treatment with toxin-antitoxin. Inquiries were at once instituted to ascertain from the Department of Public Health of Massachusetts the circumstances attending these cases of illness. The pertinent portions of the reply from the Massachusetts authorities were as follows:

"Our first report of reactions came from the Concord Board of Health. Upon receipt of this report which stated that severe reactions had been observed in a small group of school children following immunizations with toxin-antitoxin, an immediate investigation was made to determine if possible the source of the trouble. This investigation brought out the fact that the toxin-antitoxin which was used on Wednesday of last week had become frozen during the extreme cold of the preceding Saturday and Sunday. A similar experience

has been reported from Bridgewater where twenty severe reactions followed the injection of some frozen material, and one case each has also been reported from Holyoke and Boston.

"The lots of toxin-antitoxin mixture in question had satisfactorily passed all laboratory tests and had been tested and approved by the Federal Government, and with thousands of doses of these lots which had been given throughout the State the only reactions occurred with the material which was known to have been frozen after delivery.

"A member of the staff of the United States Hygienic Laboratory has been asked to make a complete investigation of the matter, and Dr. William Park, Dr. Bela Schick, Dr. M. J. Rosenau, Dr. Hans Zinsser and Dr. Edwin H. Place have been called in consultation in order that everything possible might be done for the patients.

"Experiments already carried out at the State Antitoxin and Vaccine Laboratory show that the reserve stocks of the particular lots used are still entirely satisfactory in every way, but that freezing alters this product, causing it to develop a toxicity which it did not originally possess.

"All toxin-antitoxin which had been distributed previous to or during the recent extreme cold spell has been recalled and all boards of health in the State have been requested to notify physicians of the possible danger attending the use of any product that might have been frozen, with the request that they also return to the laboratory any of this material now in their possession."

Toxin-antitoxin is now being administered to 2,000 or more children a month in the State of Virginia and it is very important that the experience of the Massachusetts Department of Public Health should be borne in mind. There is very little danger of the mixture freezing in transit through the mails in Virginia, but instances have already occurred where the material was allowed to freeze after the package had been opened and a portion of it had been used. In the interest of safety such material must be discarded.

The most satisfactory results will be obtained if toxin-antitoxin and similar biological products are kept in a refrigerator. This precaution will avoid deterioration by warmth or by extreme cold.

GEORGE C. PAYNE, M. D.,
Epidemiologist, Va. State Board of Health.

The Truth About Medicine

In addition to the articles enumerated in our letter of December 29, 1923, the following have been accepted:

Abbott Laboratories:
- Potassium Bismuth Tartrate—D. R. L.
- Ampules Potassium Bismuth Tartrate with Butyn—D. R. L., 0.1 Gm.
- Ampules Potassium Bismuth Tartrate with Butyn—D. R. L., 0.2 Gm.

Britt, Loeffler and Weil:
- Loeflund's Malt Soup Stock (Dr. Keller's Formula).

Hynson, Wescott and Dunning:
- Flumerin—H. W. and D.

Lederle Antitoxin Laboratories:
- Corpus Luteum—Lederle.
- Corpus Luteum Extract—Lederle.
- Ovarian Residue—Lederle.
- 1 Per Cent. Silver Nitrate Solution—Lederle.
- Whole Ovary—Lederle.

Parke, Davis and Co.:
- Ergot Aseptic
- Ampules Ergot Aseptic 1 Cc.

Scarlet Red Sulphonate—P. D. and Co.
- Scarlet Red Emulsion, 4 per cent.—P. D. and Co.
- Scarlet Red Ointment, 5 per cent.—P. D. and Co.
- Scarlet Red Ointment, 10 per cent.—P. D. and Co.

NEW AND NON-OFFICIAL REMEDIES.

Potassium Bismuth Tartrate—D. R. L.—A basic potassium bismuth tartrate containing from 64 to 69 per cent of bismuth. For a discussion of the actions and uses, see Bismuth Preparations in the Treatment of Syphilis (Journal A. M. A., August 25, 1923, p. 661). Potassium bismuth tartrate—D. R. L. is supplied only in the following forms: Ampules potassium bismuth tartrate with butyn—D. R. L., 0.1 Gm. (containing potassium bismuth tartrate—D. R. L., 0.1 Gm. suspended in 2 Cc. of a 0.6 per cent. solution of butyn in a fixed oil); Ampules potassium bismuth tartrate with butyn—D. R. L., 0.2 Gm. (containing potassium bismuth tartrate—D. R. L. 0.2 Gm. suspended in 2 Cc. of a 0.6 per cent. solution of butyn in a fixed oil). The product is administered intramuscularly. The Abbott Laboratories, Chicago.

Scarlet Red Sulphonate.—The sodium salt of azobenzene-disulphonic-acid-azobetanaphthol. The actions and uses of scarlet red sulphonate are essentially the same as those of scaret R medicinal Biebrich (see New and Non-official Remedies, 1923, p. 275). It is marketed only in the following forms: Scarlet red emulsion, 4 per cent.—P. D. and Co., Scarlet red ointment, 5 per cent.—P. D. and C., Scarlet red ointment, 10 per cent.—P. D. and Co. Parke, Davis and Co., Detroit. (Journal A. M. A., January 19, 1924, p. 209).

Ergot Aseptic.—A liquid extract of ergot containing the soluble constituents of the drug. It is standardized biologically so that 1 Cc. represents 2 Gm. of ergot. The actions and uses of ergot aseptic are the same as those of ergot. The dose is 1 to 2 Cc. injected intramuscularly. Ergot aseptic is marketed only in 1 Cc. ampules. Parke, Davis and Co., Detroit.

Loeflund's malt soup stock (Dr. Keller's formula).

—A preparation essentially similar to extract of malt U. S. P., but containing a small amount of potassium carbonate. Loeflund's malt soup stock is designed for use in preparing the malt soup of Dr. Keller. Britt, Loeffler and Weil, New York. (Journal A. M. A., January 26, 1924, p. 303).

PROPAGANDA FOR REFORM.

Intarvin.—Because of numerous inquiries, the Council on Pharmacy and Chemistry publishes a preliminary report on Intarvin. The product is marketed by the Intarvin Company, Long Island City, N. Y. Dr. Max Kahn has applied for a patent on it. Many statements have been given the lay press by those interested in the promotion of Intarvin, but as yet no publication has appeared in the medical press, except preliminary reports by Kahn. Intarvin is proposed for use in diabetes or in conditions where acidosis occurs. It is a synthetic fat which, it is claimed, can be assimilated by the diabetic without the production of products that cause acidosis, as is the case with ordinary fats when these are consumed by diabetics. Intarvin is stated to be the glyceryl ester of margaric acid admixed with ten to twelve per cent of liquid petrolatum. While the usefulness of Intarvin is curtailed by the discovery of insulin, it should be valuable in planning a diabetic diet if the claims made for it are substantiated. Intarvin is still in the experimental stage and it is unfortunate that so much newspaper notoriety has been given it. Until acceptable evidence is available for its usefulness, palatability and practicability, judgment of its worth must be suspended. (Journal A. M. A., January 5, 1924, p. 51).

Chemical Foundation Wins.—During the late war, our government seized many German patents on synthetic drugs. Later the Alien Property Custodian, on executive order of President Wilson, sold 4,700 German chemical patents to the Chemical Foundation, Inc. This corporation agreed in turn to license any American firm that could present evidence of reliability in chemical manufacture to manufacture under these patents. As a result of this action, physicians may today obtain different brands of arsphenamin instead of one proprietary "Salvarsan"—and at competitive prices. The same is true of other useful synthetics. About a year and a half ago, President Harding instructed the Alien Property Custodian to take steps to secure the return of all patents sold to the Chemical Foundation, Inc., on the ground that the price paid was inadequate and the transaction illegal. Suit was instituted by the government against the Chemical Foundation, Inc., for the recovery of the patents. The suit was won by the Chemical Foundation, Inc. In the decision of the court, it was held that the price was adequate, for the reason that many of the patents were nonworkable and that, therefore, because of the financial risk and hazard, the value of the patents "was too slight and problematical to warrant the payment by American citizens of a sum even remotely approximating what they might have been worth to the German owners for their monopolistic purposes." Hence, the bill of complaints filed by the government was set aside. (Journal A. M. A., January 12, 1924, p. 130).

The Action of Salicylates, Cinchophen, Neocinchophen and Related Products.—The latest (1923) edition of Useful Drugs speaks of the salicylates, cinchophen, neocinchophen and related drugs as "highly efficacious" and "exceptionally efficient" in the management of certain phases of arthritis. The assumption that the drugs exert an etiotropic action by destroying bacterial agencies responsible for the disease has repeatedly been disproved. They do not function as germicides, for example, in rheumatic fever assumed to be caused by micro-organisms. Recently, Hanzlik and Painter compared the antiphlogistic effect of salicylates, cinchophen and neocinchophen in experimental edema of head and neck. They concluded that the so-called antiphlogistic action of these drugs as exemplified in the prompt amelioration of objective signs of inflammation, including the swelling and edema of the joints, is not due to a direct action on the inflammatory process. Experimental edema of the head and neck in animals was not beneficially influenced by previous and simultaneous treatment of the animals with sodium salicylate, cinchophen or neocinchophen. Negative results with respect to antiphlogistic effects have also been observed in the treatment of other kinds of edema. Consequently it is concluded that the beneficial effects of these drugs in rheumatic fever appear to be produced neither through etiotropic nor organotropic, but rather through symptomatic action, the benefits being mediated through antipyresis and analgesia. (Journal A. M. A., January 19, 1924, p. 213).

Diphtheria Antitoxin for the Infant.—In the presence of diphtheria, no age is a contraindication to the administration of antitoxin. The dose for infants of from ten to thirty pounds and under two years of age, has been given as from 2,000 to 10,000 units. The immunity to diphtheria in young infants seems to depend on antitoxin received from the mother through the placental circulation. This immunity is possessed by more than 90 per cent of children in the early weeks of life, but at the end of a year this has been lost by about half of them. Serums are well borne by young children, as they have little sensitiveness to foreign proteins. A suitable immunizing dose of diphtheria antitoxin for an infant would be from 200 to 500 units, and the therapeutic dose from 2,000 to 10,000 units. (Journal A. M. A., January 19, 1924, p. 228).

Dermatosis From Fur.—Reports have been published of persons who have suffered severe eruptions and irritations of the skin following the wearing of furs. Investigation has shown that these disturbances are caused by paraphenylendiamin, which is used to dye furs black and by quinone, an oxidation product of paraphenylendiamin, which gives a brown color. The untoward effects may be prevented largely by extreme care in the finishing and dying processes with special attention to remove all excess dye, and particularly traces of quinone from the fur. (Journal A. M. A., January 26, 1924, p. 307).

Effects of Bromids on Epilepsy.—The harmful effects of the prolonged administration of bromids, aside from the skin and intestinal effects, are gradually increasing dullness, heaviness, torpor, stupidity, with greater self-centering of interests and unintelligence. The size of the dose that is necessary to control the fits is probably an important factor in determining the amount of damage that will be done. (Journal A. M. A., January 26, 1924, p. 325).

In writing advertisers, please mention this journal.

Book Announcements

Pediatrics. By Various Authors. Edited by ISAAC A. ABT, M. D., Professor of Diseases of Children, Northwestern University Medical School, Chicago. In eight octavo volumes, totaling 8,000 pages, with 1,500 illustrations, and separate Desk Index volume free. Now ready, VOLUME I, containing 1,240 pages with 284 illustrations, and VOLUME II, containing 1,025 pages with 180 illustrations. Philadelphia and London. W. B. Saunders Company. 1923. Cloth, $10.00 per volume. Sold by subscription.

After the lapse of nearly ten years since preparations for Abt's pediatrics were begun, the first two volumes have come from the press. As stated in the preface, this system of pediatrics is a collection of monographic treatises on subjects of interest in the diseases of infancy and childhood. The authors are from every section of the United States, and are all men of eminence, who have made valuable contributions to the literature of the subjects on which they have written in this system.

Volume I begins with a concise history of the "Encyclopedias Which Refer to the Diseases of Children," by Dr. Abt. Following this is a "History of Pediatrics," by Fielding H. Garrison. In this very scholarly and interesting treatise Dr. Garrison traces the progress of pediatrics from the earliest times down to the present day. The subject is handled in a very fascinating manner.

"Congenital and Acquired Predisposition and Heredity," by Clarence C. Little, is based largely on experimental investigations and, though rather technical, should be of considerable interest even to the general reader.

"The Anatomy of the Infant and Child," by Richard E. Scammon, is well illustrated and a valuable article for reference purposes. The subject of "Growth and Development" by T. Brailsford Robertson is well handled.

"Physiology of Metabolism in Infancy and Childhood" is treated in a very thorough manner by John R. Murlin. A very brief discussion of the "Application of Physical Chemistry to the Physiology of Childhood" is given by Jesse F. McClendon. "Hygiene of the School Age," by Josephine E. Young, is a very complete and excellent treatise in which is discussed every phase of the child's activities as related to health. It contains much practical matter that will be of especial interest to the practicing physician.

"Hygiene of the Home" and "Hygiene of Infants in General," by Walter Reeve Ramsey, are brief but practical discussions.

"Climatotherapy," by F. L. Wakeham, contains a climatic description of a number of health resorts, and a too brief discussion of treatment by this agency.

"Hygiene of Crippled Children" is considered in a very short article by H. Winnett Orr.

For the practictioner, Volume II will probably be of more interest than Volume I. Space does not permit a complete list of the subjects discussed. Of particular interest is the illuminating article on "Mortalities of Infancy" by Richard A. Bolt. "Peculiarities of Disease in Childhood," by John Diven, and "Prophylaxis and Treatment" by E. R. Debuys deserve special mention for their excellence. There are valuable articles on "Diseases of the Newborn" by N. O. Pearce and on "Premature Infants" by Julius H. Hess.

The articles on infant feeding, deficiency diseases, metabolc disorders and related subjects are given considerable space and are of a very practical nature.

For a work of this character there is remarkably little repetition.

Though here and there are statements with which some pediatricians will take issue, these two volumes of Dr. Abt's system are of an unusually high calibre and should be in the library of every doctor particularly interested in child welfare. It is hoped that the volumes yet to be published will be up to the high standard set by these two.

J. B. STONE, M. D.

Management of the Sick Infant. By LANGLEY PORTER, M. D., M. R. C. S. (Eng.), L. R. C. P. (Lond.), Professor of Clinical Pediatrics, University of California Medical School, etc., and WILLIAM E. CARTER, M. D., Assistant in Pediatrics and Chief of Out Patient Department, University of California Medical School. Second Revised Edition. Illustrated. St. Louis. C. V. Mosby Company. 1924. 8vo. 659 pages. Illustrated. Cloth. $8.50.

Practical Chemical Analysis of Blood. A Book Designed as a Brief Survey of this Subject for Physicians and Laboratory Workers. By VICTOR CARYL MYERS, M. A., Ph.D., Professor and Director of the Department of Biochemistry, New York Post-Graduate Medical School and Hospital. Second Revised Edition. Illustrated. St. Louis. C. V. Mosby Company. 1924. 8vo. 232 pages. Cloth, $4.50.

Geriatrics. A Treatise on the Prevention and Treatment of Diseases of Old Age and the Care of the Aged. By MALFORD W. THEWLIS, M. D., Editor, Medical Review of Reviews; Associate Editor, The Therapeutic and Dietetic Age. With introductions by A. JACOBI, M. D., LL.D., and I. L. NASCHER, M. D., Second Edition, Revised and Enlarged. St. Louis. C. V. Mosby Company. 1924. 8vo. 401 pages. Cloth, $4.50.

Selected Essays on Orthopedic Surgery. From the Writings of NEWTON MELMAN SHAFFER M. D., Emeritus Professor of Orthopedic Surgery, Cornell University Medical College; Consulting Orthopedic Surgeon, St. Luke's Hospital, New York, and to the N. Y. State Orthopedic Hospital for Children, West Haverstraw, etc. With forewords by DR. LOVETT and DR. FISHER, and comments by DR. COTTON, DR. NUTT, DR. BLADGEN, and MR. HARDON. Illustrated. G. P. Putnam's Sons. New York and London. The Knickerbocker Press. 1923. 8vo. 636 pages. Cloth, $5.00.

An Outline of Radium and its Emanations. A Complete Handbook for the Medical Profession. Published by National Radium Products Company, under the direction of VYNNE BORLAND, M.B., Ch.B., B.Sc., Glasgow, Director, Medical Consulting Department. The object of the book is to tell something about Internal Radium Therapy. Paper. 33 pages. Price, $1.00.

Beginning Again at Ararat. By MABEL EVELYN ELLIOTT, M. D., Medical Director of Near East Relief. With Introduction by JOHN H. FINLEY. Illustrated. New York, Chicago, London and Edinburgh. Fleming H. Revell Company. 1924. 340 pages. Cloth, $2.00 net.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on the Treatment of Medicine, Surgery, Neurology, Pediatrics, Obstetrics, Gynecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners. By Leading Members of the Medical Profession throughout the World. Edited by HENRY W. CATTELL, M. D., Philadelphia, Pa., with the collaboration of fifteen eminent physicians and surgeons. Volume IV. Third-third Series. 1923. Philadelphia and London J. B. Lippincott Company. 1923. 308 pages, with a number of illustrations. Cloth.

Genitourinary Diseases and Syphilis. By HENRY H. MORTON, M. D., F. A. C. S., Professor of Genitourinary Direases and Syphilis in the Long Island College Hospital; formerly members of the Committee on Venereal Diseases in the Office of the Surgeon General, etc. Fifth edition, revised and enlarged, with 328 illustrations and 38 full page colored plates. New York. Physicians and Surgeons Book Company. 353 West 59th Street. 1924. 712 pages. Cloth, price $10.00.

A Physician's Manual of Vaccine Therapy. By G. H. SHERMAN, M. D. Press of the Bacteriological Laboratories, G. H. Sherman, M. D., Detroit. 160 pages. This manual gives in concise, comprehensive manner data pertinent to the application of bacteriological vaccine therapy in the prophylaxis and treatment of infectious disease.

Awards from the Benjamin Franklin Fund.

Benjamin Franklin spent much time in England from 1757 to 1762 representing the American colonies. While there he placed one hundred pounds in the hands of members of the society of friends as a trust, to be invested with accumulations, for not less than one hundred and fifty years. Thereafter at the discretion of the trustees, awards were to be made from time to time for the most valuable contributions to science considered by them, either manuscript or published, on the subject of cures, but particularly in relation to surgery, the nervous system and part "mind treating" have in the recovery and preservation of health.

Announcement is now made by Roberts Lloyd-Gresham, for the trustees, of the first awards from this fund.

Minor Award, Fusakichi Omori or Tokio, unpublished treatis "The Rotary Knife in Surgery": Award, Charles P. Steinmetz of Schenectady, privately published treatis, "The Nervous System as a Conductor of Electrical Energy": Major Award, Pierson W. Banning of Los Angeles, on published work, "Mental and Spiritual Healing: All Schools and Methods: A Text Book for Physicians and Metaphysicians."

The U. S. Civil Service Commission,

Washington, D. C., announces that applications will be rated as received until June 30, 1924, for the following positions:

Medical interne (psychiatric): Medical Officers, junior grade, grade A, and grade B: Graduate nurse: and Reconstruction aide and reconstruction pupil aide in occupational therapy.

Full information about these applications may be received from above named Commission.

How to Plant The Home Grounds.

The Southern Nurserymen's Association, P. O. Box 169, Birmingham, Ala., has issued a number of short articles pertaining to beautifying the home grounds, with special reference to the growing of more fruit for home use. They tell of the kinds and varieties of fruits suitable for home orchards and tell when and where to plant trees and shrubbery to make the home grounds especially attractive.

Virginia Medical Monthly

FOUNDED BY LANDON B. EDWARDS, M. D., APRIL, 1874.
OWNED BY THE MEDICAL SOCIETY OF VIRGINIA.
PUBLISHED BY THE PUBLISHING COMMITTEE.

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All correspondence regarding editorial matters, articles, advertisements, subscription rates, etc., should be addressed to the Journal.

All advertisements are received subject to the approval of the Council on Pharmacy and Chemistry of the American Medical Association.

Subscription Price: $2.00 per annum in advance.
Single Copies 20c.

Vol. 50 MARCH, 1924 No. 12

Editorial

Pernicious Anemia.

Before commenting upon the changes in and characteristics of the blood in pernicious anemia, certain features of the disease may be pointed out. These clinical evidences result from the blood changes. Abnormal blood destruction in the patient brings about more or less characteristic symptoms in the color of the skin, in alterations of the liver and spleen, in febrile reactions and in increased amounts of blood-derived pigments in the plasma and excreta.

The color of the skin is typical lemon color. This hemolytic jaundice may or may not be the first evidence to attract the attention of the patient. In early period of the disease this pallor may not be characteristic; later it becomes so. The degree and intensity of the hemolytic jaundice depends, roughly speaking, upon the degree of blood destruction, but this does not always follow. An absence of pallor does not preclude advancing hemolysis. The saturation of the skin with pigments is an associated factor that enters into the intensity of the icterus.

In a report of a group of cases from Johns Hopkins Hospital in which there was an analysis of the clinical histories of 111 patients with pernicious anemia, 2.7 per cent showed "good" color, while the remaining 97.3 per cent showed discolored skin, described as "pale yellow with brown tint, lemon yellow, sallow, ashen, icteroid tint, pale and slightly yellow."

The spleen and liver present rather constant changes in pernicious anemia.

The spleen is particularly associated in the process of increased blood destruction. The spleen shows a high degree of vascularity and blood engorgement in the pulp areas in contact with the connective tissue spaces, while the sinuses are rather empty. Here the hemolysis occurs, it is believed; hemolysis occurs also in the liver and in other parts of the body as well. In the Johns Hopkins report, however, in 80 per cent of the patients the spleen was not palpable; in 5.4 per cent increased splenic dullness was recorded; and in 19 per cent the spleen was recorded as palpable. Another observer states that in about 40 per cent of the cases the spleen is enlarged to the degree that it is palpable.

The liver is enlarged in pernicious anemia, the degree probably varying with the stage. In the Hopkins cases (111 cases—histories studied) the liver was recorded as enlarged in thirty-seven cases. The dual enlargement of liver and spleen, doubtless, occurs.

Fever. The temperature of the body is usually above normal showing highest variations from normal during stages of hemolysis, or so-called relapses. This is not invariably the rule, however. It is an irregular fever of low grade, sometimes characterized by a high swing.

Condition of Teeth. In the Hopkins cases 14.4 per cent (of 111 cases) had had all teeth extracted; 25.2 per cent had good teeth; 67 per cent had bad teeth.

The Tongue and Mouth. In about 45 per cent of cases the tongue and mouth symptoms appear. This usually consists in soreness, rawness, sensation of burning, particularly on the anterior half of the tongue. The tongue is red and dry, superficially ulcerated. Glossitis is constant. The mucosa of the mouth presents the same process.

The Stomach. The occurrence of a diminished hydrochloric acid in gastric secretion is common. In fact, the patient frequently applies for treatment because of stomach trouble, complaining of loss of appetite, heartburn, nausea, vomiting, diarrhea, colicky pain in stomach and intestines. The blood picture may be wanting in all confirmatory signs of pernicious anemia, although the mouth and stomach symptoms are marked. Progressive blood

destruction brings forward characteristic blood picture.

The Course. The disease is characterized by remissions and relapses. They have recently been divided into following groups—

(a) Acute: progressively downward;

(b) Milder: marked by fair remission with hemolysis absent during remission;

(c) Considerable degree of hemolysis with slow and mild remissions, with serious relapses;

(d) Chronic: slow progress downward, with mild remissions;

(e) Continuously chronic, progressing very slowly on downward course.

The Causes. Much has been written on the etiology, but we do not know the cause, or causes. (a) "A reversion of the hematopoietic functions to a somewhat embryonic type;" (b) "Dietary hemolytic toxins produced in the process of intestinal putrefaction;" (c) "Infective disease of unknown etiology;" (d) "Altered lipoid metabolism or a condition of hypersplenism;" (e) "Unsaturated fatty acids" acting as hemolytic poisons; amino acids acting as hemolytic agents—are a few of the explanations offered for the chronic hemolytic anemia, known as pernicious anemia.

The Blood. The blood system is a primary and a fundamental consideration. In this system, apparently, are found the most emphatic and important changes. Probably, all symptoms arising from other systems of the body, named and not named in the foregoing sketch, depend upon blood changes which are found in nearly all cases, at least, in advanced stages of the disease.

Red Blood Cells. The count of red blood cells may go to five million. Two million or less is usual count, varying with stage of the disease. Patients with a count of between five million and two million may enjoy fair strength, although patients may die with count around three million. The change for the better in count may mean an increase in number of cells, due to cessation of hemolysis or from increased formation in spite of hemolysis.

Hemoglobin. In pernicious anemia, hemoglobin remains relatively high. The standards of estimation vary. But the general opinion is that the red cell count is lower relatively than hemoglobin and so color index is one or above one in pernicious anemia; the blood looks red, but watery.

Red Cells. Every red blood cell, physiologists tell us, sooner or later undergoes disintegration. The real and ultimate fate of red blood cells is not known, but it is supposed from suggestive evidence that the spleen and liver serve as sites of final disintegration whether the intermediate stage of destruction is by phagocytic action or fragmentation.

The formation of the red cells is in the red bone marrow and oxygen appears to be the needed stimulus to red cell formation. In pernicious anemia the red cells show any of the abnormalities. Macrocytosis (giant-cell formation) is the chief characteristic of the blood in pernicious anemia. Microcytes also are commonly observed. Abnormalities of the red cells embrace all forms. The evidence of many microcytes and fragmented cells points to a recent increase in cell destruction. Poikilocytosis (varied cell formations) is marked. In good remissions the cells may be difficult of interpretation; in relapses the blood picture is more easily recognized. Polychromatophilia (many + color + to love, or stainable with various stains) and stippling frequently occur. Nucleated red cells are usual in pernicious anemia. Megaloblasts (large + germ) are very usual and were formerly taken as pathognomonic. The blasts, disclosing an effort on the part of the bone marrow to regenerate, appear to come out in crises as though the marrow was making final efforts to regenerate the blood.

The white cells are diminished (leukopenia) denoting marrow deficiency. The blood platelets show the same state of exhaustion by a diminution in number. Coagulating time of the blood in pernicious anemia is not markedly abnormal.

Finally, the summary of Wilson and Evans in the study of the clinical histories of 111 cases of pernicious anemia in the Johns Hopkins Hospital from 1918 to 1922 may be of interest.

1. Pernicious anemia is about equally common in men and women, or possibly, slightly more common in men.

2. It is a disease of adult life. It is never seen in children, is uncommon in old age, and occurs most frequently between the ages of 40 and 60 years.

3. It is very uncommon in negroes.

4. The anemia, once established, practically never completely regenerates.

5. Anisocytosis and poikilocytosis are constant findings. Basophilia is rather uncommon, although it does occur.

6. Although a leucocytosis may occur in the presence of an infection, a leucopenia is the characteristic finding.

7. An eosinophilia as high as 17 per cent may be found, but an actual increase in eosinophile cells are the rare exception. The same applies to the large mononuclear and transition cells.

8. Myelocytes, as high as 10 per cent, may be found in an occasional case.

9. Free hydrochloric acid in the gastric contents of these patients is so rare that, when present, it should put the diagnosis under suspicion.

10. The spleen is palpable in only about 20 per cent of pernicious anemia patients. It may, however, extend 5 to 6 cm. below the costal margin.

11. The liver is palpable in about 33 per cent of pernicious anemia patients. The edge may be palpated 5 to 6 cm. below the costal margin.

12. All patients, whatever other discomforts they may have, suffer from one or more of the following symptoms: weakness, disturbances of digestion, and nervous disorders of the extremities.

REFERENCES.

1. Oxford Medicine, Vol. 2, page 611.
2. Bulletin of Johns Hopkins Hospital, Vol. 35, No. 396, page 38. An Analysis of Clinical Histories of Patients with Pernicious Anemia in the Johns Hopkins Hospital from 1918 to 1922, inclusive. By Charles R. Wilson and Frank A. Evans.
3. Physiology and Biochemistry in Modern Medicine. Page 904. MacLeod.

News Notes

Virginia Society for Crippled Children.

By the formation recently of the Virginia Society for Crippled Children, a definite progressive step was taken consistent with the most advanced ideas in the care and education of ALL crippled children, not just the limited number who are fortunate enough to find their way into existing hospitals and schools. At the present time a project of international scope is being developed, involving eleven of the United States and two Provinces of Canada; this Society has for its fundamental principle "the assuming of the responsibility for the care, cure, and education" of the 300,000 cripples in our land. All the above state units are working together toward the same end through their combined effort under the name of The International Society for Crippled Children.

The Virginia Society for Crippled Children is one of the component parts of the parent organization and will help to aid in and control this larger and broader activity, as well as develop the work in its own state. This Society is not in the interest of any one hospital, city, or individual, but is to work for the betterment and enlargement of present facilities and the development of newer units where necessary.

In the State of Virginia there are estimated to be about 7,500 crippled children, these figures being very conservatively based on the experience of other states, especially Kentucky and Tennessee. Kentucky was supposed to have had 5,000 crippled children, whereas more accurate figures recently, following surveys, show it has about 12,000. Hence, the estimate for Virginia will probably be well below the actual number present. The number of these children treated during the past five years, according to recent estimates, is not over 2,000, so that with the constant developing of crippling conditions, the immensity of the problem can be appreciated. There are at least four or five thousand children at present who need treatment badly, but who cannot receive same under present facilities.

The procedure best suited to the particular needs of this problem is summed up in the phrase "take the facilities to the child in so far as is possible." That is, develop the necessary facilities of care, cure, and education as near to the homes of these children as can be, particularly as regards the education. Only a few centers are necessary to carry out the acute hospital, or operative care, due to the fact that only twenty-five per cent need hospital treatment, but many so-called convalescent homes are needed in which are held special classes for physical as well as mental education, vocational and special training, etc.; in these classes the children can receive the individual attention so necessary if any progress is to be made.

Before any steps can be taken toward the development of this work, the accurate number and location of all the cripples should be known, and a determination made as to their physical and mental status; in other words, surveys of the various cities and counties must

be made and numbers of clinics held, and general interest must be aroused. The Virginia Society for Crippled Children will sponsor and stimulate proper surveys of any and all communities by enlisting the interest and help of any and all groups or clubs desirous of furthering this great work. It is the earnest desire of those interested in this Society and its work to get the active co-operation of all existing organizations, especially the medical societies upon whose members rests the fundamental foundation of all work of this character. The physician knows, or ought to know, intimately the parents of these children, as well as the children themselves, and he can therefore advise and instruct them as to the best course to pursue; he can see that the children are cared for in the early and developmental stages, so that the attention of this Society can be directed toward their relief or at least toward the finding of facilities for their care and education.

This Society wishes to bring together into one concerted effort all clubs and agencies desiring to help and work toward the goal of finding and alleviating the distresses of nature as expressed in these children. It should be a community affair, not limited to any one group or club, although a beginning must be made by some one group.

The next meeting of The Virginia Society for Crippled Children will be in March, when permanent officers will be elected and a constructive policy formulated. All clubs or organizations desiring to enlist in this work can get full information from the Secretary-Treasurer of the Society. The temporary officers are Dr. L. T. Royster, University, president; Mr. L. B. Hindman, Roanoke Y. M. C. A., vice-president; Professor Chas. G. Maphis, University of Virginia, secretary-treasurer.

"Strike" Malpractice Damage Suits

Are among the latest frauds to be perpetrated against physicians. Several of these have been attempted against New Jersey physicians. In an effort to suppress them, the Medical Society of New Jersey has appointed a Defense Council to look after the interests of its members. This Committee has petitioned the press of the State to co-operate with them by refusing to publish accounts of suits against physicians until they are terminated in court. In their request they state that "in no instance has the Medical Society protected, or will it protect, any physician who has been guilty of negligence, dishonesty or incompetence, much less of violation of law."

During the past few years, suits have been brought against some New Jersey physicians by individuals, with the assistance of unscrupulous lawyers who place pecuniary advantage above ethical consideration. They seem to believe that, to avoid the publicity of such an action, even where there is not a remote chance of obtaining a verdict, a physician will settle out of court. It is simply a form of blackmail. The plan of the Defense Council is to hear the physician's side of the case and, if they regard him guiltless, to order the case defended. In the past two years not a dollar has been collected by law out of suits aggregating $400,000. In every case defended by the State Society, the verdict has been in favor of the physician.

A "Delano Nurse" in Buchanan County, Va.

Miss Mary Emily Thornhill is the first nurse to be assigned to Virginia under the terms of the will of the late Jane A. Delano, director of Red Cross Nursing Service during the World War. Miss Delano left a fund with which to pay special nurses who are assigned to territories where the need for educating the population in primary public health rules is great. Miss Thornhill has been detailed to Buchanan County which, with a population of 15,500, is said to have the highest birth as well as the highest death rate of any county in Virginia. There are only two physicians in Buchanan County in general practiie and two physicians associated with lumber companies—four in all—and no public health nurses. This is an isolated mountainous section in which travel is done by horseback.

Miss Thornhill, a graduate of the Children's Hospital, in Washington, is exceptionally well fitted for her new work. She saw active service during the World War and later took a special course in Public Health Nursing in Richmond. Since then, she has been interested in working for crippled children in Alexandria and vicinity. She reports that the people in Buchanan County are already meeting her more than half way in their eagerness to learn how to improve their living conditions.

Miss Thornhill is the fourth "Delano Nurse" to be appointed by the Red Cross in the United States, the others being located in Alaska, on the coast of Maine, and at Highlands, N. C.

The Tri-State Medical Association of the Carolinas and Virginia

Held its annual meeting in Greenville, S. C., February 20-21, under the presidency of Dr. Dr. Chas. O'H. Laughinghouse, of Greenville, N. C. The meeting was well attended, the papers interesting, and the Greenville doctors contributed in every way to the entertainment and pleasure of those in attendance.

Richmond, Va., was selected as the meeting place for the February, 1925, meeting and headquarters will be at Jefferson Hotel. Officers elected for the ensuing year are: President, Dr. F. H. McLeod, Florence, S. C.; vice-presidents, Drs. Garnett Nelson, Richmond, C. S. Lawrence, Winston-Salem, N. C., and E. W. Carpenter, Greenville, S. C.; secretary-treasurer, Dr. James K. Hall (re-elected), Richmond. New members of the Executive Council are Drs. W. B. Porter, Roanoke, Va., E. S. Boice, Rocky Mount, N. C., and Francis B. Johnson, Charleston, S. C. Those holding over are Drs. F. M. Hodges, Richmond, D. A. Stanton, High Point, N. C., W. R. Wallace, Chester, S. C., F. C. Rinker, Norfolk, J. W. Long, Greensboro, N. C., and George H. Bunch, Columbia, S. C.

The Convalescent Home for Crippled Children

Was formally opened in Richmond on February 24. This home has fourteen large rooms and a new sun parlor and will comfortably accommodate twenty-five convalescent crippled children and a corps of nurses and attendants. The children are taken from Dooley Hospital in this city, and help to relieve the congestion there. No surgeon or physician receives remuneration for his services and expenses in the care of these little patients, and all the money is contributed personally or by local organizations. Dr. W. T. Graham is chief orthopedic surgeon to the home.

It is interesting to note that, since Dr. Graham and the visiting nurses began their work among Virginia's crippled children in July, 1918, 1,231 maimed children have been operated upon, and 1,149 of these have practically been cured. In connection with this work, orthopedic clinics are now held in several Virginia cities.

Conference of Maritime Quarantine Authorities of the West Coast of South America.

Dr. Belasario Porras, the President of the Republic of Panama, called a conference to meet in Panama, R. P., on February 25, 26, 27, 28 and 29 for the purpose of considering the international standardization of maritime quarantine on the west coast of South America and the prevention of international spread of communicable disease in that litoral.

The conference held formal discussions each morning at which were taken up questions bearing upon maritime quarantine regulations; the methods, periodicity and certification of ship fumigation; uniform quarantine declarations and uniform bills of health. Afternoons were devoted to practical demonstrations of public health and hospital methods. Clinics were held at various hospitals. Interesting demonstrations were given.

The Medical Association of the Isthmian Canal Zone held a special meeting at the Santo Tomas Hospital for the conference. A visit was made to the site of the Gorgas Memorial Institute and this constituted one of the outstanding features of this international meeting. There were many social functions for the delegates.

The secretary-general of the conference was Surgeon William Colby Rucker, U.S.P.H.S., Chief Quarantine Officer of the Panama Canal. Physicians, surgeons and public health workers visiting the Isthmus of Panama at the time of the conference attended.

The Medical Work of the Near East Relief.

This pamphlet, edited by Geo. L. Richards, M. D., gives in brief outline something of the work performed by the Medical Division of the Near East Relief during its first year in Turkey. It is a record of obstacles overcome and results attained and, for the most part, is made up of reports furnished the editor by the physicians themselves. It gives much intesting reading.

Copies will be sent upon request to "Near East Relief," 151 Fifth Avenue, New York, N. Y.

Hygeia,

The magazine of individual and community health, deals with subjects pertaining to personal health, mother craft, diet and foods, community health, medical news and discoveries, school health, and has a special children's department and one of questions and answers. Is any magazine better suited to be put into the hands of your patients desiring knowledge of health? Its gives impressionable people as well as those seeking knowledge the best views

of these subjects from the most competent authorities in the country. The price is only $3 a year.

A "clip sheet," giving abstracts of articles from *Hygeia*, is published by the American Medical Association each month. Upon request, this "clip sheet" could be sent your local newspapers for the purpose of reprinting items.

Married.

Dr. Herbert Claiborne Jones and Miss Catherine Scott Smith, both of Petersburg, Va., February 23.

Dr. Arthur Hooks and Miss Edith Kelly, both of Bristol, Va., March 8. Dr. Hooks graduated from the Medical College of Virginia in 1912 and served in the medical corps during the World War. He has for three years been years been associated with Dr. T. F. Staley, of Bristol, in treatment of diseases of the eye, ear, nose and throat.

Dr. S. A. Conduff,

Of Laurel Fork, Va., is in New York City, taking a special course in diseases of the eye, ear, nose and throat.

Dr. G. W. Parson,

Of the class of '22, Medical College of Virginia, who has been located at Swords Creek, Va., is now associated with his brother, Dr. A. D. Parson, at Raven, Va.

Dr. W. E. Dickerson,

Who located in Danville, Va., upon completing his service at Retreat for the Sick, Richmond, last year, has moved to Bramwell, W. Va.

Dr. T. C. Harris,

Recently of Martinsville, Va., has moved to Radford, Va.

Dr. L. M. Abbott,

Who has been located for some years at Lignite, Va., has moved to Flinn, Alleghany County, Va.

Dr. J. Edwin Wood, Jr.,

Who graduated from the University of Virginia in 1921, after service at the Massachusetts General Hospital, and later studying in Boston, returned to Virginia this past fall and became connected with the medical staff of the University of Virginia.

Dr. L. L. Williams, Jr.,

Who has been connected with the malaria control work in Virginia for the past two years, under the auspices of the U. S. Public Health Service, has been detailed by the service to a similar work in South Carolina. He is at present in Columbia, S. C., and will probably be absent from Virginia until May.

Dr. Watson S. Rankin,

State Health Officer of North Carolina, now on leave of absence from that State, that he might serve for a year as field director with the American Public Health Association, was in Richmond the latter part of February, studying the work of the local Bureau of Health.

To Endow Phipps Psychiatric Clinic.

It has just been announced that Mr. and Mrs. Henry Phipps were the anonymous donors, last year, of $1,000,000 to Johns Hopkins University. The gift was conditional upon the raising of an additional $1,000,000. This has now been pledged and the permanent endowment of the Phipps Psychiatric Clinic is a certainty.

Pittsylvania Board of Public Welfare.

Dr. R. W. Bennett, Toshes, and Dr. L. E. Fuller, Witt, are among those who have been appointed members of the Pittsylvania County (Va.) Board of Public Welfare.

Dr. William Evans,

Norfolk, Va., was elected a member of the board of managers of the recently organized chapter of Sons of the American Revolution, in Norfolk, Va.

Dr. and Mrs. E. C. Fisher

And son returned to their home in Richmond, about the middle of February, after spending some time in Tampa and St. Petersburg, Fla.

Dr. J. C. Bodow

Is one of the charter members of the Rotary Club being organized in Hopewell, Va.

Dr. E. A. Terrell,

Of Fredericks Hall, Va., is spending a two months' vacation in Florida.

With Chamber of Commerce Committees.

Drs. Charles A. Blanton, Charles R. Robins, J. Shelton Horsley, and W. H. Parker, all of Richmond, have been named members of standing committees of the local Chamber of Commerce.

Medals Awarded for Radiological Work.

The Radiological Society of North America, at its meeting recently held at Rochester, Minn., awarded gold medals to Dr. Emil G. Beck and Mr. Clyde Snook, for their achievements in the field of radiology.

The Virginia State Dental Association

Will hold its annual meeting in Norfolk, Va., April 28-30. At this meeting there will

be presented several papers which will treat of dentistry in its relation to general medicine. Dr. C. B. Gifford, Norfolk, is president, and Dr. Harry Bear, Richmond, secretary.

Dr. Chichester goes to Arlington County.

Dr. P. M. Chichester, formerly medical inspector for the Richmond Bureau of Health, and for the past year director of the Loudoun County Health Unit, has been appointed to a similar position in Arlington County, succeeding Dr. James W. Cox, resigned. Dr. Cox will continue in health work but has not yet announced his plans.

It is understood that Loudoun County has not made the necessary appropriation for the continuance of the health work in that county under auspices of the State Board of Health.

Dr. A. L. Stratford, II.,

Who graduated from Medical College of Virginia in 1921, has returned to his home in Richmond and has opened offices at 315 East Main Street. He will be engaged in the practice of obstetrics. Since graduation, Dr. Stratford has had service with Bellevue and Nursery and Child's Hospitals in New York City.

Dr. J. R. Gorman,

Lynchburg, Va., who was recently operated on for appendicitis, is at his work again.

News of Medical College of Virginia.

Plans are being made for reunions of the classes of 1868, 1899 and 1914 during commencement exercises of the Medical College of Virginia in June.

Dr. George R. Shapiro, Brooklyn, N. Y., of the class of '17, is working on a plan to organize a chapter of Medical College of Virginia alumni in Brooklyn.

Dr. Teusler Honored.

Dr. Rudolph Teusler, formerly of Richmond, was decorated with the Order of the Sacred Treasure, fifth class, at ceremonies held in Tokyo, last month, incident, to the celebration of Japanese Empire Day. Dr. Teusler is a director of St. Luke's International Hospital at Tokyo, a member of the American Embassy staff, and the American Episcopal Mission.

Masonic Honors.

At the meeting of the Grand Lodge of Virginia Masons in Richmond, last month, the following are among those appointed district deputy grand masters: Dr. R. R. Nevitte, Temperanceville; Dr. T. G. Bradshaw, Windsor; and Dr. J. L. Early, Saltville.

Dr. Cumming as Surgeon General, U. S. P. H. S.

President Coolidge has forwarded to the Senate a recommendation for the re-appointment of Dr. Hugh S. Cumming as surgeon general of the U. S. Public Health Service. Dr. Cumming is a native Virginian and studied medicine in this State. He was first appointed to this position during President Wilson's administration.

Dr. J. Shelton Horsley,

Richmond, by invitation, read a paper on February 20th, in Newark, before the Academy of Medicine of Northern New Jersey. His subject was "Surgery of Intestine, with Special Reference to the Underlying Physiologic Principles."

We were interested in learning from Dr. Horsley, that this association, though rather small of membership, owns its own home and has a collection of rare old medical books which it would be difficult to duplicate.

Memorial Health Building.

Watertown, N. Y., has erected a new health building as a memorial to the men of that city who served in the World War. In addition to the office of the superintendent and offices for the local Red Cross chapter, quarters are provided for tuberculosis, child welfare, dental and other clinics.

Dr. Leathers Member of National Board of Medical Examiners.

Dr. Waller S. Leathers, dean and professor of Histology at University of Mississippi, School of Medicine, has been appointed a member of the National Board of Medical Examiners. Dr. Leathers has many friends in Virginia, having graduated from the University of Virginia in 1894.

Dr. Joseph W. Peabody

Has been appointed assistant professor of clinical medicine at Georgetown University, Washington, D. C. He will continue in charge of the Tuberculosis Hospital of the District as also medical director of the tuberculosis dispensary of the Board of Health.

Dr. H. R. Fairfax,

Who has been located in Bristol, Va., for several years, is taking a post-graduate course in New Orleans, after which he expects to locate at Brookhaven, Miss.

Dr. Bernhard S. Steinberg,

Who served for a year as an interne at Me-

morial Hospital, Richmond, after graduation from Boston University School of Medicine, in 1922, has now located in Boston for the practice of medicine.

The American Proctologic Society,

At its last meeting, decided to hold the first part of its meeting in New York City, where its scientific and business sessions will be held and, upon invitation of proctologists in England, to hold an adjourned meeting in London. Dates for the New York meeting are June 23-25, and the members will probably sail about June 28. Physicians in good standing are invited to join the Society on this trip. Information may be obtained from Dr. Ralph W. Jackson, secretary, 245 Cherry Street, Fall River, Mass.

Dr. and Mrs. R. L. Hudnall,

Who have been in Chicago, since their marriage last November, have returned to their home at Beverlyville, Va.

Noted Endocrinologist Addresses Richmond Doctors.

Dr. Arthur Biedl, professor of endocrinology at the University of Prague, addressed the Richmond Academy of Medicine, at its meeting on February 26, his subject being "Cerebral Adiposity." Dr. Biedl is in this country upon invitation of the Medical School of the Univeristy of Chicago, to deliver the annual Dodson Memorial Lectures. While in this country, he will make addresses at several medical schools. While in Richmond, he also spoke to the students at the Medical College of Virginia.

Dr. George Green,

A graduate of the Medical College of Virginia and now a medical missionary in South Africa, gave an illustrated talk at one of the Richmond churches last month, at which he told of the work being done in his mission field. After graduating in Richmond in 1905, Dr. Green served as one of the internes at St. Vincent's Hospital, Norfolk.

Dr. Jury B. Loving,

Who located in Danville, Va., last summer, upon completion of his internship at St. Luke's Hospital, Richmond, has moved to Williamsville, Bath County, Va.

Dr. E. L. Marshall,

Big Island, Va., has been named a vice-chairman of the Bedford County (Va.) Board of Agriculture. The object of this organization is to do for the county what boards of trade and chambers of commerce do for towns and cities.

Dr. Beverley R. Tucker

Has been elected president of Westmoreland Club, Richmond, for the year beginning March 1, 1924.

Roanoke Hospital Association Receives Gift.

It is announced that a large gift has been made the Roanoke Hospital Association of Roanoke, Va., by a citizen of that city. This will make possible the immediate remodeling of the old unit of the hospital. It is the purpose of the Association to enlarge the hospital to a capacity of about 116 beds.

Dr. H. S. Belt

Recently returned to his home in South Boston, Va., after a visit to his brother in New York.

Dr. Robert L. Kern,

Richmond, was elected venerable master of the Libertas Lodge of Perfection, No. 5, Ancient and Accepted Scottish Rite of Freemasonry, at its annual meeting held in this city, the latter part of February.

Dr. S. W. Maphis,

Warrenton, Va., after spending sometime in North Carolina recuperating after illness, has gone to Hot Springs, Va., for a visit.

Dr. C. H. Saunders

And several friends of Chase City, Va., have returned home after spending sometime in Florida.

"Value of Gelatine in Infant Feeding."

Physicians who have not received the first report of the research work of the above pamphlet, may have a complimentary copy by addressing Charles B. Knox Gelatine Co., Inc., Johnstown, N. Y. They also issue pamphlets with attractive and palatable ways of preparing gelatine dishes for the sick and well.

Index Number.

This issue is index number of the VIRGINIA MEDICAL MONTHLY. We expect to maintain our high standards in the next volume and count on the co-operation of our members in this work. The scientific and business parts are interdependent the one on the other and it is our aim to keep them both on a high plane.

Dr. E. A. Hatton,

Who is in charge of medical inspection in the Portsmouth, Va., schools, was taken sud-

denly ill on the first of this month and is in Parrish Memorial Hospital, that city.

Dr. E. R. Miller

Has returned to his home in Harrisonburg, Va., after a visit to his son at the University of Richmond.

Dr. S. C. Draper,

Who has been practicing in Pulaski, Va., has gone to Norfolk, Va., where he will be connected with the Pension and Relief Department of the Norfolk and Western Railway.

Public Health Summer Schools.

In response to a great demand for summer school work in public health, the U. S. Public Health Service has arranged short term summer courses to be given at Columbia University, New York City, University of Michigan, Ann Arbor, University of Iowa, Iowa City, and University of California, Berkeley. The courses will extend over six to eight weeks and cover a wide range of subjects. Tuition fees will be moderate.

If interested, further information may be obtained from Surgeon General of the U. S. Public Health Service, 16 Seventh Street, Southwest, Washington, D. C.

Wise County Medical Society.

The regular meeting of this Society held at Norton, Va., February 27, was well attended. Dr. Charles Stevens, of Baltimore, addressed the Society on "Antitoxins and Vaccines." Dr. F. C. Handy, of Toms Creek, was elected a member. Dr. F. S. Givens, of Wise, was elected president, and Dr. C. B. Bowyer, Stonega, was re-elected secretary-treasurer. Following the meeting, a banquet was served members, friends and invited guests at the Norton Hotel.

Dr. B. I. Bell,

Williamsburg, Va., has returned to his home in that place, after spending sometime in New York City, specializing in X-ray and nose and throat work.

Dr. Charles R. Irving,

Who has been located at Howardsville, Va., since returning from the World War, has moved to Martinsville, Va., where he will be a member of the staff of the Lucy Lester General Hospital.

Chiropractors Try to Secure Legislation.

During the meeting of our State Legislature, just adjourned, two bills were presented by different sets of chiropractors. One called for the creation of a chiropractic board; the other requested that a chiropractic be placed on the Virginia State Board of Medical Examiners. Neither of these bills exacted the educational requirements made by our State Board. Both were killed in different committees and, as we go to press, there seems no likelihood that the chiropractors will get through any legislation this year.

The Medical Society of The District of Columbia,

At its annual meeting, held recently, elected Dr. John D. Thomas president, Dr. Coursen B. Conklin secretary, and Dr. William J. Mallory legislative chairman.

National Health Series.

In order to make available to the general public at moderate prices authoritative books on all phases of human life, the National Health Council has arranged with the Funk and Wagnalls Company for the publication of The National Health Series. It will contain twenty books of about 18,000 words each, written by leading health authorities of the country. These books, bound in flexible fabrikoid, sell for 30 cents each, or $6.00 for the series of twenty. They will be issued in sets of five each.

The Tennessee State Medical Association

Will hold its annual meeting in Knoxville, April 11-13, 1924. The president is Dr. H. L. Fancher, Chattanooga, and secretary Dr. Joseph F. Gallagher, Nashville.

The Medical Society of The State of North Carolina

Will hold its annual meeting in Raleigh, April 15-17, 1924, under the presidency of Dr. J. V. McGougan, of Fayetteville. Dr. L. B. McBrayer, of Sanatorium, is secretary.

The American College of Physicians,

At its recent meeting in Chicago, conferred fellowships upon 178 candidates. Dr. Harlow Brooks, of New York, was elected president for the coming year, and Dr. Frank Smithies, of Chicago, was re-elected secretary general.

The South Carolina Medical Association

Is to hold its annual meeting in Orangeburg, April 15-17. Dr. Leland O. Mauldin, Greenville, is president, and Dr. E. A. Hines, Seneca, secretary.

Dr. Crile Resigns.

It is announced that Dr. George W. Crile has tendered his resignation, effective July 1,

as professor of surgery at Western Reserve University Medical School, Cleveland, Ohio, and also as house surgeon of Lakeside Hospital. He plans to devote his time to research work and private practice.

Dr. Elliott C. Cutler, of Peter Bent Brigham Hospital, Boston, will succeed Dr. Crile.

"Bread for The New Family."

This phamphlet, issued by the Bureau of Child Welfare, of the Virginia State Board of Health, co-operating with the Children's Bureau, Department of Labor, U. S. A., is the third in the New Family Series. As its name indicates, it treats of bread and the kind of flour for making it to be used by the "New Family." Teachers, health workers and others interested may secure copies upon application to the State Registrar of Vital Statistics, Richmond, Va.

Dr. Thomas C. Johnson,

Who has been charge of the Thompson Hospital, at Lumberton, N. C., since the death of Dr. Neill A. Thompson in 1922, has now leased the hospital and will continue to operate it. Dr. Johnson has many friends in Virginia, having graduated from the University College of Medicine, Richmond, in 1903.

Income Tax Returns

Should be filed with the Collector of Internal Revenue for your district on or before March 15, 1924. A fine is imposed for non-compliance with this law. If personal illness is liable to delay this return, an extension of time should be secured from the Collector of your district.

Sterilization Bill Presented Legislature.

A Senate bill providing for the sterilization of inmates of State institutions for the insane, feebleminded and epileptic, was reported unanimously by the House Committee on Asylums and Prisons, the latter part of February. Dr. A. S. Priddy, of the State Epileptic Colony, Lynchburg, and Dr. J. S. DeJarnette, of the Western State Hospital, Staunton, appeared in support of the bill, as did also prominent laymen interested in this work.

The Augusta County (Va.) Medical Association

Held its regular quarterly meeting in Staunton, February 6, Dr. A. F. Robertson, Jr., Staunton, presiding. Several papers were read, including an interesting symposium on Cancer. Dr. H. G. Middlekauff, Weyers Cave, Va., is secretary of this Association.

Dr. Thomas D. Jones,

Of Petersburg, Va., who graduated from the University of Virginia, Department of Medicine, last June, is now at the Houston Clinic, Houston, Texas.

Dr. Harry L. Claud,

Recently of Newport News, Va., has moved to Washington, D. C., where he will be located at 1744 N Street, Northwest.

The American Congress on Internal Medicine,

At its annual meeting in St. Louis, last month, selected Washington, D. C., as its 1925 meeting place, and elected Dr. William Gerry Morgan, of Washington, president. Dr. Frank Smithies, of Chicago, was re-elected secretary general.

"Reciprocity Between the Health Officials and the Medical Profession."

Under this caption, Dr. E. C. Levy, director of Public Welfare of Richmond, gave his presidential address before the last meeting of the American Public Health Association. It outlines the advantages to both the American Public Health Association and the American Hospital Association in bringing about a closer relationship between the public health administrator and the hospital and dispensary. He brings out clearly in his paper how health authorities uphold the rights of physicians and how they can be of service, the one to the other, and not antagnosite. It is a paper which should enjoy a wide publicity. A limited number of copies may be obtained from the American Public Health Association, 370 Seventh Avenue, New York, N. Y.

Important Decision Helps American Chemistry.

The decision of the U. S. Court, District of Delaware, in favor of The Chemical Foundation, Inc., is of far-reaching importance to the medical profession, and to the manufacturers of medicinal chemicals. Prior to the World War, the medical profession was practically dependent upon foreign sources of supply for many important drugs. Patents were held in this country by foreign owners—not that the drugs might be manufactured here, but that American firms might not make them.

In order to establish and foster the chemical industry in this country, the patents were sold by the United States Government to The

Chemiccal Foundation, Inc., so that no exclusive licenses might be issued to American concerns. This plan of devoting these patents to the public use has stood the test of actual trial, and has proven a sucess. Many of the important medicinal chemicals previoously unobtainable from American sources, are now manufactured in this county, and the medical profession now has the assurance that, unless there should be some later and unexpected reversal of this decision, they may never again be dependent upon foreign monopoly in drug supplies.

To further foster the use of American-made medicinals, the Federal Trade Commission, the National Research Council, the Council on Pharmacy and Chemistry of the American Medical Association, and other agencies have suggested and provided new and distinctive names for American synethetics which are rapidly replacing those formerly made only abroad, and it is suggested that physicians might be performing a patriotic duty to use, specify, and refer to these drugs by their American names. Among the products so designated are arsphenamine, neoarsphenamine, barbital sodium, cinchophen, neocinchophen and procaine. The Chemical Foundation Inc., also licensed certain manufacturers to make, in this county, acriflavine and neutral acriflavine.

X-Ray For Sale.

One portable bedside unit complete with Coolidge Tube. Wappler. Capacity 30 milliamperes with a gap up to 5 inches. Operates on a 110 volt alternating current. All kinds of radiographic work can be done with it. Good as new. Address, "X. Y. Z.," care this Journal. (Adv.)

Wanted—

Assistant physicians, mental and tuberculosis, $1,320—$2,000 a year and maintenance. Apply State Employment Commission, 22 Light Street, Baltimore, Maryland. (Adv.)

Wanted—

About the 1st or 15th of April a physician to take over a large country practice in the bright tobacco belt of Pittsylvania County. Roads very good; church, school and store convenient.

For further particulars, communicate with Dr. W. J. Wigington, Java, Va. (Adv.)

Obituary

Dr. William Fewell Merchant,

Manassas, Va., died at his home in that place, February 21, at the age of 56 years. He graduated from the former University College of Medicine, Richmond, in 1897, and was located in South Richmond for some years, at which time he was a local surgeon for the Southern Railway. Later he moved to Manassas and, at the time of his death, was a surgeon for both the Southern and Chesapeake and Ohio Railways. He was also a member of the Prince William County Board of Health and of the Medical Society of Virginia. During the World War, he was stationed at Camp Lee and retired with the rank of captain in the medical corps. His wife and a son survive him.

Dr. Julian Thomas Doles,

A practicing physician of Ivor, Va., died in Portsmouth, February 28, at the age of 59 years. He had been in poor health and was under hospital treatment. Dr. Doles studied medicine at the College of Physicians and Surgeons, Baltimore, from which he graduated in 1887. Dr. H. M. Doles, of Norfolk, is a son of the deceased.

Dr. Walter S. Roy,

Of Front Royal, Va., died at the home of his daughter in Newport News, Va., the middle of February, and was buried in Front Royal. He was 82 years old. After serving throughout the Civil War, he took up the study of medicine at the Medical College of Virginia and graduated in 1868. Soon thereafter, he located in Front Royal, where he became one of the best known and most beloved physicians of that section of the State. He was at one time a member of the Medical Society of Virginia.

Dr. Theodore Frederick Reusch

Died in Bedford County, Va., after an illness of four years, which dated back to his service in the World War, through which he served as captain in the medical corps. He was 40 years of age and graduated from the Homeopathic Medical College of Missouri, St. Louis, in 1908. His wife survives him.

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